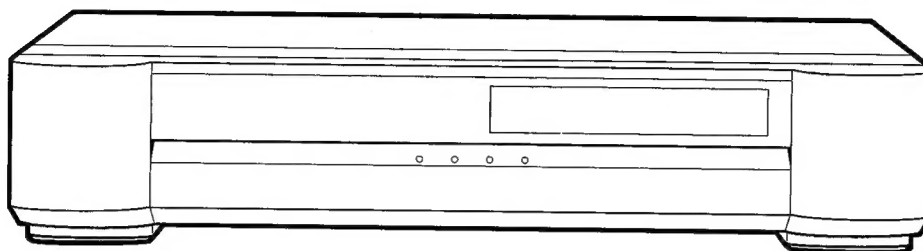




Service Manual

VIDEO CASSETTE RECORDER



S VHS

MODEL

HS-U67/HS-U67(C)

Only cassettes marked S-VHS or VHS can be used with this video cassette recorder.

SPECIFICATION

Tape Format	: S-VHS or VHS 1/2" high-density video cassette tape	Audio Input:Line	: -6dBs, 50k ohm unbalanced RCA pin plug
Power Source	: 120V AC; 60Hz	Video Output	: 1.0Vp-p, 75ohm unbalanced RCA pin plug
Power Consumption	: Approx. 37W	Audio Output	: -6dBs, 1k ohm unbalanced RCA pin plug
Television System	: EIA standard(525lines, 60fields) NTSC color signal	TV Tuner	
Video Recording System	: VHS/S-VHS standard	VHF	: 54~168MHz, 174~468MHz
Luminance	: Frequency modulation recording	UHF	: 470~806MHz
Color Signal	: Low frequency conversion sub-carrier phase shift recording	Operating Temperature	: 41°F to 104°F
HI-FI Audio Recording system	: VHS standard Frequency modulation, deep layer recording	RF Channel Output	: Channel 3 or 4, switchable
Linear Audio Track	: 1track	Weight	: Approx. 14.3 lbs
Tape Speed	: 1-5/16 i.p.s(standard play) 7/16 i.p.s(extended play)	Dimensions	: 16.7"(W), 3.9"(H) 13.9"(D)
Record/Playback Time	: 160min. with T-160 cassette (SP mode) 480min. with T-160 cassette (EP mode)	Timer	: 8 programmes for any channels in one month/every week/Monday to Friday 12 hour digital synchronized with integrated quartz oscillator frequency.
Heads:Video	: 4 rotary heads	Deck	: F Deck
HI-FI Audio	: 2 rotary heads		
Audio/Control	: 1 stationary head		
Erase	: 1 full track head		
Video Input	: 0.5 to 2Vp-p, 75ohm unbalanced RCA pin plug		

- Weight and dimensions shown are approximate.
- Design and specifications are subject to change without notice.



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SAFETY PRECAUTIONS

INTRODUCTION

This manual provides service information for the adjustments of mechanical and electrical operations. Due to design modifications, the servicing procedures and data given in this manual are subject to possible change without prior notice.

WARNING: Many of the programs broadcast by television stations are protected by copyright and Federal law imposes strict penalties for copyright infringement. Some motion picture companies have taken the position that home recording for noncommercial purposes is an infringement of their copyrights. Until the courts have ruled on the proper interpretation of the law as applied to home video recording, this equipment, if used to record copyrighted material, should be operated at user's own risk.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

This video cassette recorder should be used with AC 120V, 60Hz only.

SAFETY NOTICE

Before returning VCR to the customer a safety check of the entire VCR should be made. The service technician must be sure that no protective device built into the instrument by the manufacturer has become defective or inadvertently damaged during servicing. Observe all caution and safety related notes located on or inside the VCR cabinet.

WARNING: Alterations of the design or circuitry of this VCR should not be made.

Any design alterations or additions, such as circuit modifications, auxiliary speaker jacks, switches, grounding, active or passive circuitry, etc. use of unauthorized camera, cables, accessories, etc. may alter the safety characteristics of this VCR and potentially create a hazardous situation for the user.

Any design alterations or unauthorized additions will invalidate the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting from them.

Do not lubricate any motors.

When reassembling the VCR, always be certain that all the protective devices are put back in place, such as non-metallic control knobs, shield plate, etc.

When service is required, observe the original lead dress. Components that indicate evidence of overheating or other electrical or mechanical damage should be replaced.

LEAKAGE CURRENT CHECK

Before returning the VCR to the customer, it is recommended the leakage current be measured by the following methods.

1. Cold Check

With the AC plug removed from the 120V AC source, place a jumper across the two AC plug prongs. Turn the AC switch on. Using an ohmmeter, connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part (metal cabinet, screw-heads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistance reading of 1 megohm. Any resistance below this value indicates an abnormality which requires corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.

2. Hot Check

The test sequence, with reference to the measuring circuit in Fig. 1 is as follows:

- (1) With switch S1 open, the VCR is to be connected to the measuring circuit. Immediately after connection, the leakage current is measured using both positions of switch S2 and with the switching devices in the VCR in all of their operating positions.
- (2) Switch S1 is then to be closed, energizing the

VCR, and immediately after closing the switch, the leakage current is to be measured using both positions of switch S2, and with the switching devices in the VCR in all of their operating positions.

Current measurements of items (1) and (2) are to be repeated after the VCR has reached thermal stabilization.

The leakage current shall not be more than 0.5 milliamperes.

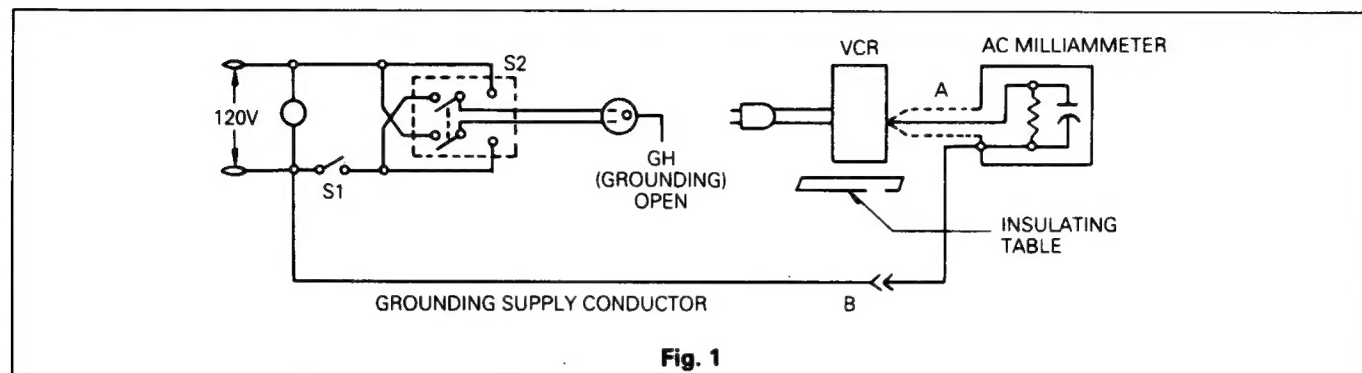


Fig. 1

AC Leakage Test

Avoid shock hazards. Do not connect this VCR to a TV antenna, cable or accessory that exhibits excessive leakage currents. If available, the television instrument or cable to which this VCR is connected should have the antenna cold check and the leakage current hot check performed.

PRECAUTIONS

Handling and storage

- Avoid using the VCR in the following places:
 - extremely hot, cold or humid places,
 - dusty places,
 - near appliances generating strong magnetic fields,
 - places subject to vibration, and
 - poorly ventilated areas.
- Be careful of moisture condensation.
- If you pour a cold liquid into a glass, water vapor in the air will condense on the surface of the glass. This is called moisture condensation.
- Moisture condensation on the head drum, one of the most critical parts of the VCR, will cause damage to the tape.
- Moisture in the air will condense on the VCR when you move the unit from a cold place to a warm place, after heating a cold room or under extreme humidity conditions. Avoid using the VCR under these conditions.
- The VCR is equipped with a moisture condensation prevention circuit. This circuit operates only when the unit is attached to an AC outlet.
- Handle the VCR carefully.

- Do not block the ventilation openings.
- Do not place anything heavy on the recorder.
- Do not place liquids on the top cover of the recorder.
- Utilize the accessory cover to prevent dust and dirt from accumulating on the recorder.
- Use the Recorder in horizontal (flat) position only.
- In case of transportation:
- Avoid violent shocks to the recorder during packing and transportation.
- Before packing, be sure to remove the cassette from the recorder.

CONNECTION

Connecting separate antennas (UHF/VHF)

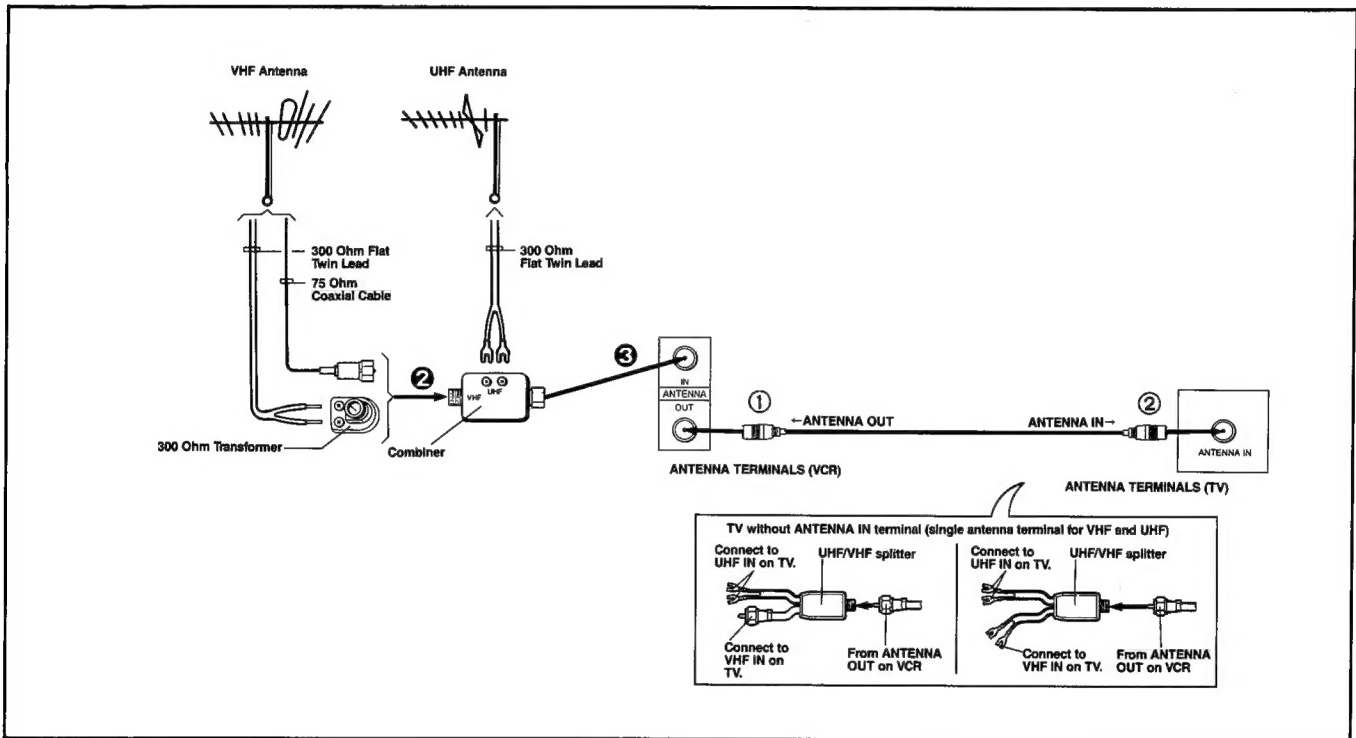
Connecting the Television

To connect separate UHF/VHF antennas to the VCR:

- ① Disconnect the antennas from the back of your TV.
- ② Connect the antenna leads onto the combiner.
- ③ Screw or push the combiner onto the ANTENNA terminal on the VCR labeled ANTENNA IN.
- ④ When you are finished, "Connecting the Television" to complete your connections.

Now that you've completed the antenna connections to your VCR, you're ready to connect the VCR to the TV. Because every television is different (especially older model TVs), your VCR may need to be connected in a variety of ways. See the Owner's Manual for Instruction Information ON:

- **Determining if you need a splitter,**
- **Connecting TVs with audio and video inputs.**



Connecting a regular TV to the VCR

Before connecting the VCR to the TV, you should already have completed the cable or antenna connections to the VCR. (If you have not already done so.)

To connect a regular TV to the VCR:

- ① Take the black cable that is supplied with your VCR (called a coaxial cable) and connect it to the ANTENNA terminal on the VCR labeled ANTENNA OUT.
- ② Connect the other end of this cable to the terminal on your TV labeled ANTENNA IN. (This terminal may also be labeled VHF IN.) If you have an older TV without this kind of terminal, you will have to use a splitter and then connect the splitter to the television.

DISASSEMBLY

1. Removal of Top Cover

- A. Remove the four screws (a~d) retaining the Top Cover, as shown in Fig.1.
- B. Gently expand the bottom edges of the Top Cover, then slide toward rear in the direction of the arrows.

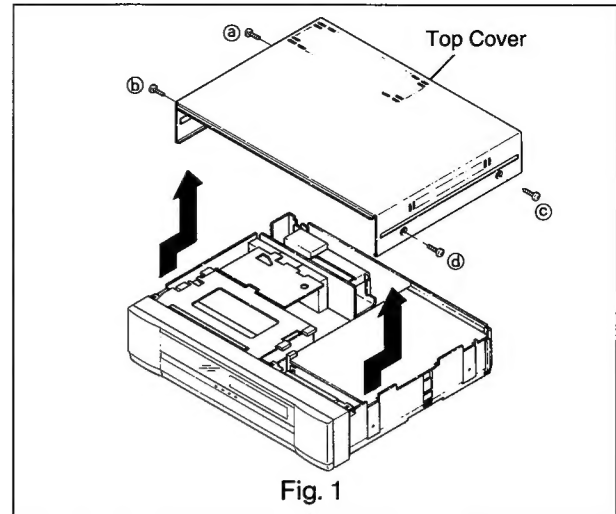


Fig. 1

2. Removal of Bottom Cover

- A. Remove twelve screws (Ⓐ ~ Ⓛ) retaining the Bottom Cover as shown in Fig. 2.
- B. Remove the Bottom Cover.

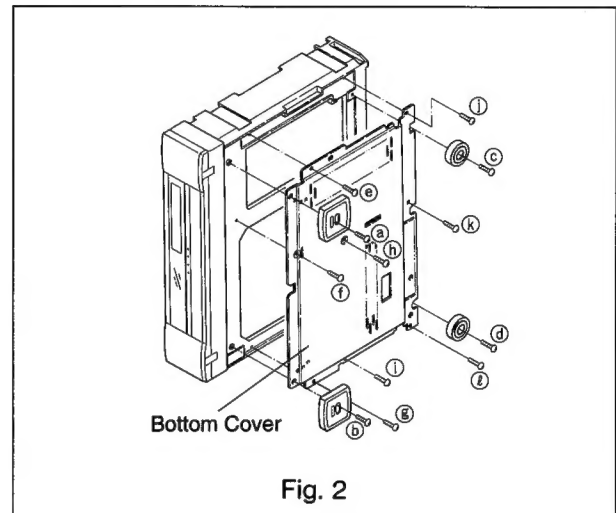


Fig. 2

3. Removal of Front Panel

- A. Remove the top cover (item 1).
- B. Unfasten six snaps (**a** ~ **f**) as shown in Fig. 3, and remove the front panel in the direction shown by the arrows.

4. Installation of Front Panel

- A. Check that the door arm is in low position.
- B. While holding the Cassette door open, mount the front panel to the VCR and fasten six snaps (Ⓐ ~ Ⓕ) using gentle pressure to the front panel as shown in Fig. 3.

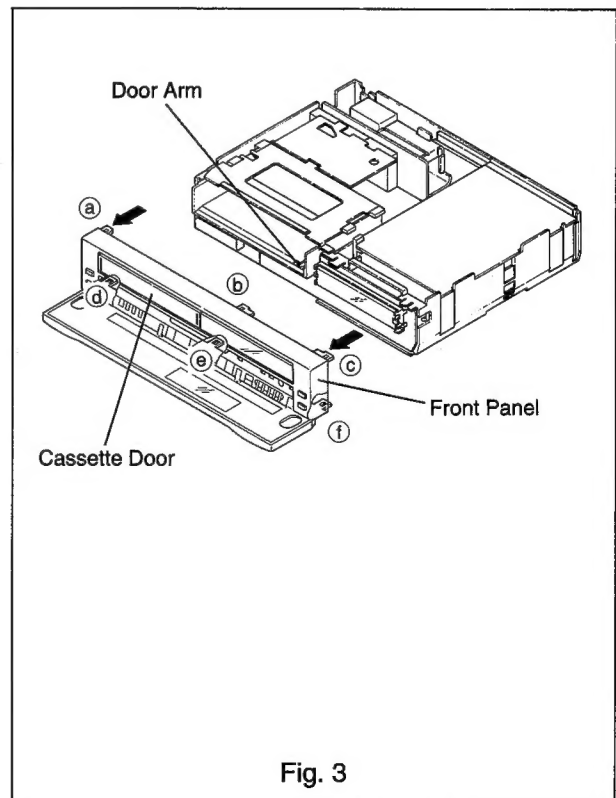


Fig. 3

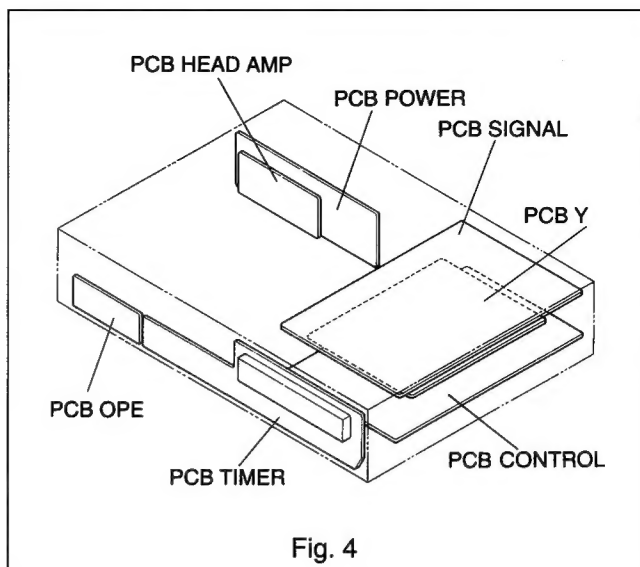
HOW TO EXECUTE CIRCUIT BOARD SERVICE

CAUTION : BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE A.C.SOURCE.

Location of Printed Circuit Boards (Refer to Fig. 4)

Note :

Use caution when disconnecting the flat cable connectors to avoid possible contact problems when reconnected.

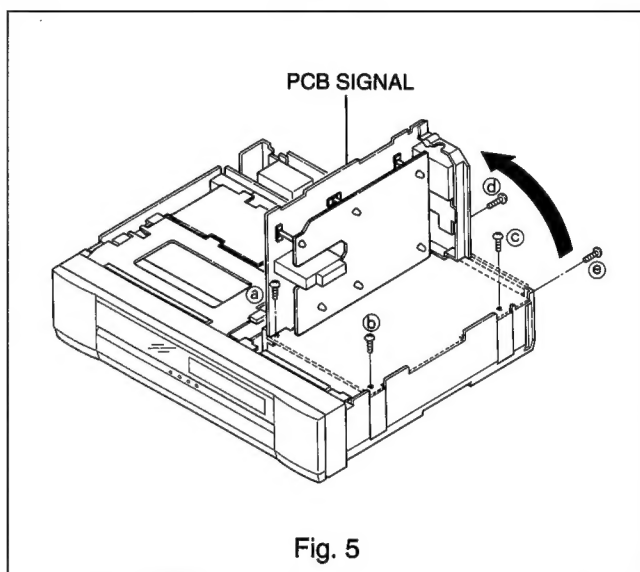


1. Removal of PCB SIGNAL

- A. Remove the Top Cover. (Page 4, Item 1)
- B. Remove the five screws (a ~ e) retaining the PCB SIGNAL, as shown in Fig. 5.
- C. Rotate the PCB SIGNAL in the direction of the arrow.

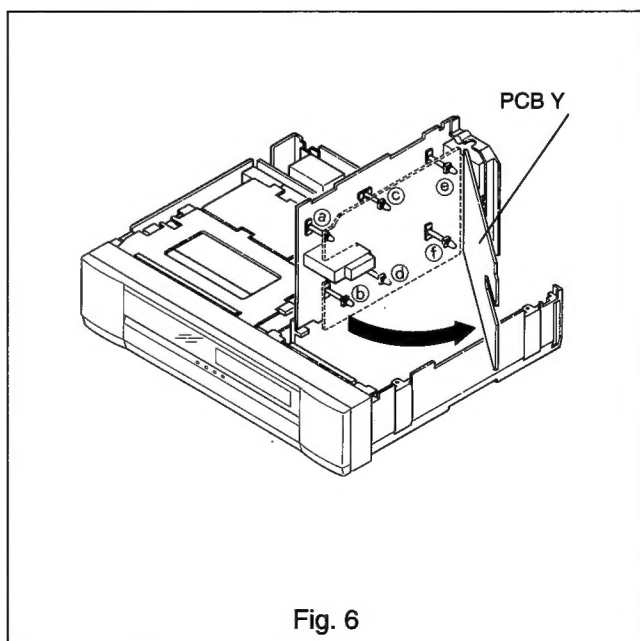
Note :

Use an insulating sheet under the PCB SIGNAL component side when servicing it in this position.



2. Removal of PCB Y

- A. Rotate the PCB SIGNAL. (Item 1)
- B. Unfasten six stoppers (a ~ f) and remove the PCB Y, as shown in Fig. 6.
- C. Rotate the PCB Y in the direction of the arrow.



3. Removal of PCB CONTROL

- A. Remove the Bottom Cover (Page 4 Item 2) and the copper side is serviceable.
- B. If it is necessary to remove the PCB CONTROL comply with the following steps.
 - a. Rotate the PCB SIGNAL. (Item 1)
 - b. Remove the two screws (① , ②) as shown in Fig. 7.
 - c. Pull the PCB CONTROL upward in the direction of the arrow.

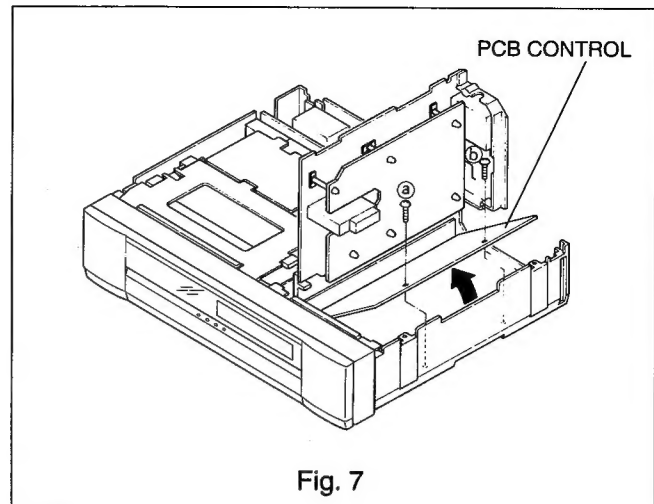


Fig. 7

4. Removal of PCB OPE and PCB TIMER

- A. Remove the Front Panel. (Page 4, Item 3)
- B. Remove the two screws (① , ②) and unfasten the four snaps (③ ~ ⑥) as shown in Fig. 8.

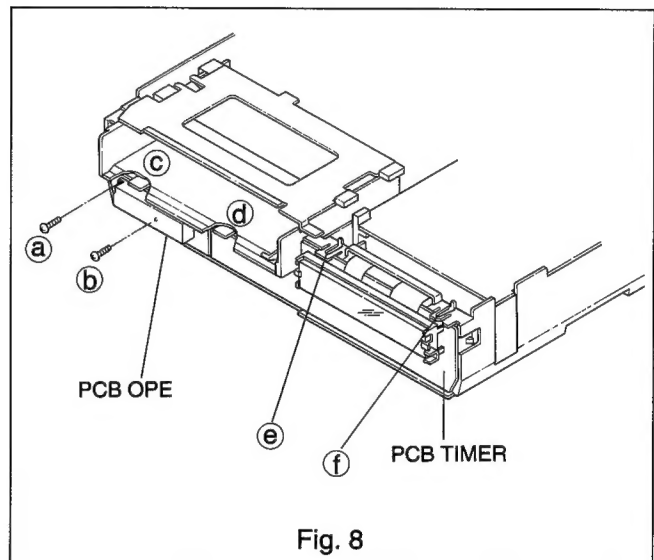


Fig. 8

5. Removal of PCB HEAD AMP

- A. Remove the three screws (① ~ ③), as shown in Fig. 9.
- B. Remove the Shield Plate.
- C. Lift the Shield Cover upward to remove it.
- D. Disconnect the flat cable by gently pulling the cover of the connector GB.
- E. Remove three screws (④ ~ ⑥).
- F. To service the solder side, remove the Shield Case ①.
- G. To service the component side, unsolder the four soldering points of the Shield Case ② to remove it.

Note:

To service with power on, use the Extension Cord (859C344O50), and ground the lead wire with a short lead.

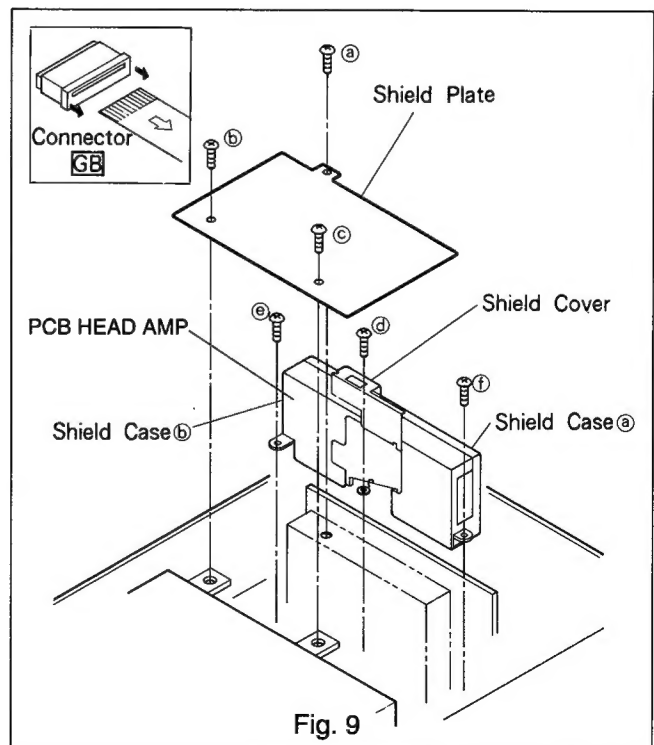


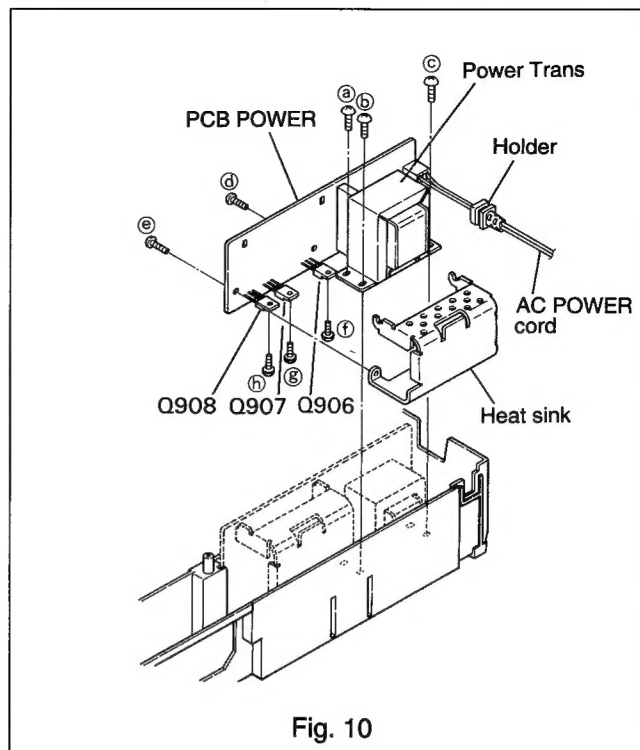
Fig. 9

6. Removal of PCB POWER

- A. Removal the three screws (a~c) retaining the PCB POWER as shown in Fig. 10.
- B. Pull the AC power cord upward to remove it from the base chassis, and pull the PCB POWER upward.
- C. To service the component side, remove five screws (d~h) retaining the heat sink as shown in Fig. 10.

CAUTION:

The power regulators on PCB POWER will be damaged if power is applied to the VCR without the heat sink being installed.

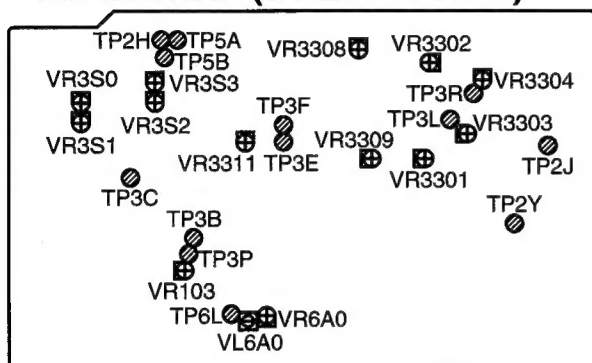


ELECTRICAL ADJUSTMENT

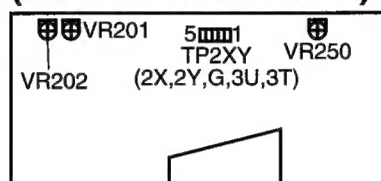
Circuit adjustments become necessary, in most cases, due to the wear of mechanical parts or following the replacement of critical components such as the video head. Certain circuit defects can often cause circuit adjustments to vary considerably. Should this occur, be sure to determine the nature of the defect and repair prior to proceeding with adjustments.

Always use the test equipment recommended for a give adjustment procedure. If the appropriate test equipment is not available, it is recommended that adjustments NOT be attempted. Refrain from the indiscrete adjustment of circuit adjustment controls unless properly equipped to do so.

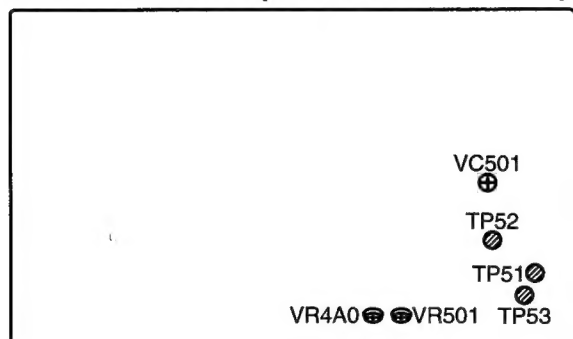
PCB-SIGNAL (SOLDER SIDE)



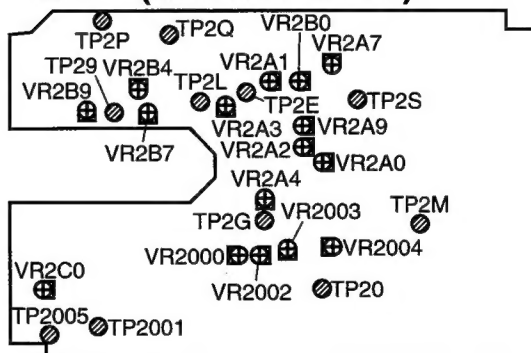
PCB-HEAD AMP (COMPONENT SIDE)



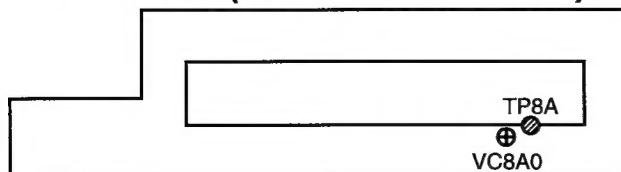
PCB-CONTROL (COMPONENT SIDE)



PCB-Y (SOLDER SIDE)

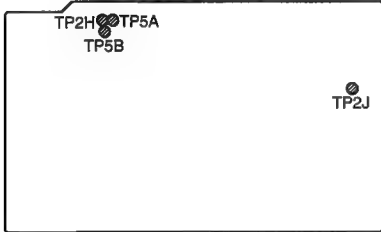


PCB-TIMER (COMPONENT SIDE)




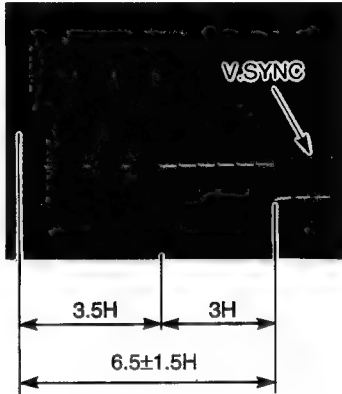
[Servo Circuit] 1. Playback Switching Point		Adjustment purpose: Video switch over timing during playback. Symptom when incorrectly adjusted: Switching noise or jitter on the playback picture.	
Measuring instrument and condition		VCR setup condition	
Oscilloscope (Probe 10:1)		Input signal	-----
Test point	TP2J	Using tape	Alignment tape (Grey scale step)
EXT trigger	TP2H	VCR condition	Playback
Measurement range	DIV 50mV TIM 50μsec	Using Jig.	-----

PCB-SIGNAL (SOLDER SIDE)



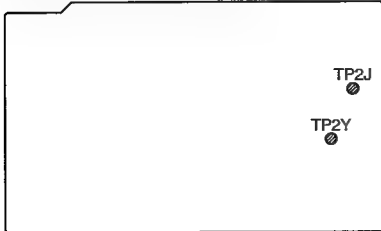
PCB-CONTROL (COMPONENT SIDE)



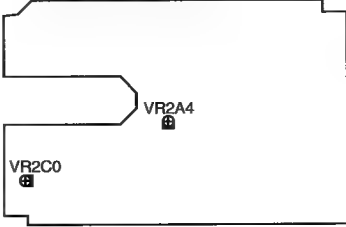


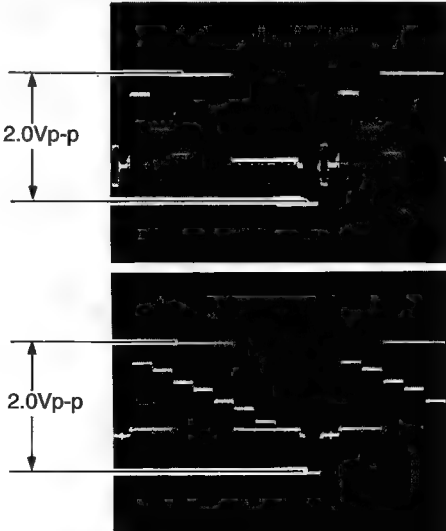
[Y/C Signal Circuit] 2. EE Output Level		Adjustment purpose: Output level of video signal at Stop mode. Symptom when incorrectly adjusted: Too bright or too dark picture: Improper color.	
Measuring instrument and condition		VCR setup condition	
Oscilloscope (Probe 10:1)		Input signal	EXT signal (color bar)
Test point	TP2J	Using tape	-----
EXT trigger	-----	VCR condition	STOP
Measurement range	DIV 50mV TIM 10μsec	Using Jig.	-----

PCB-SIGNAL (SOLDER SIDE)



PCB-Y (SOLDER SIDE)

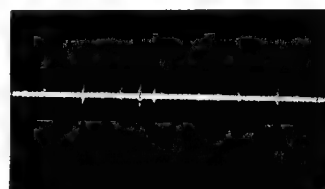
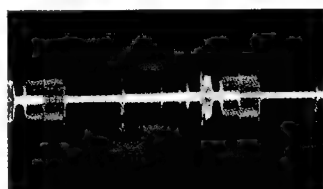
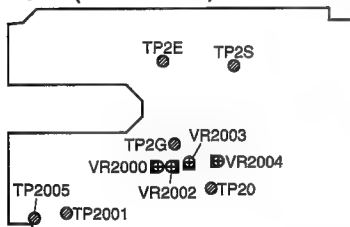




3.Y/C Separation	Adjustment purpose: Setting a Chroma separation level to get Y signal from Y/C signal. Symptom when incorrectly adjusted: Color beat appear in picture.
------------------	--

Measuring instrument and condition		VCR setup condition		1. Set the VCR to S-VHS mode with the Video Function button. 2. Connect TP2005 and TP20 to GND (TP2G). 3. Adjust VR2003 and VR2004 alternately so that chroma signal of the waveform is minimum. 4. Open TP2005 and TP20. 5. Observe TP2E. 6. Adjust VR2000 and VR2002 alternately so that chroma signal of the waveform is minimum.
Oscilloscope (Probe 10:1)		Input signal	EXT signal (Color bar)	
Test point	TP2001	Using tape	A tape(S-VHS)	
EXT trigger	TP2S	VCR condition	EP REC	
Measurement range	DIV 20mV TIM 10μsec	Using Jig.	-----	

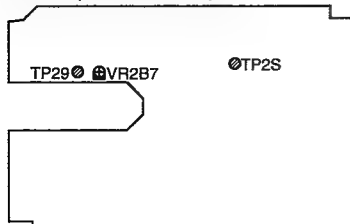
PCB-Y (SOLDER SIDE)



4.Sub emphasis input level	Adjustment purpose: Setting a input level of emphasisizer for S-VHS mode. Symptom when incorrectly adjusted: The luminance of a video signal will vary and the horizontal sync will be disturbed.
----------------------------	--

Measuring instrument and condition		VCR setup condition		1. Set the VCR to S-VHS mode with the Video Function button. 2. Observe TP29. 3. Adjust VR2B7 so that the amplitude of the waveform is 400mVp-p.
Oscilloscope (Probe 10:1)		Input signal	EXT signal (Color bar)	
Test point	TP29	Using tape	A tape (S-VHS)	
EXT trigger	TP2S	VCR condition	EP REC	
Measurement range	DIV 10mV TIM 10μsec	Using Jig.	-----	

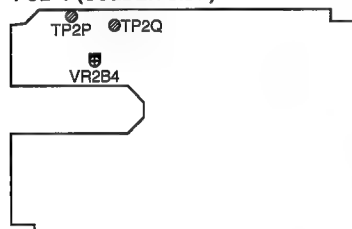
PCB-Y (SOLDER SIDE)



5.S-VHS Clamp Input Level		Adjustment purpose: Set the signal from VHS and S-VHS circuits to the same level.	
		Symptom when incorrectly adjusted: Video signal recorded in S-VHS mode will get white or the level of color signal will get lower, which causes jitter.	
Measuring instrument and condition		VCR setup condition	
Oscilloscope (Probe 10:1)		Input signal	EXT signal (Color bar)
Test point	CH-1:TP2P CH-2:TP2Q	Using tape	A tape (S-VHS)
EXT trigger	-----	VCR condition	EP REC
Measurement range	DIV 20mV TIM 10μsec	Using Jig.	-----

1. Set the VCR to S-VHS mode with the Video Function button.
2. Set the oscilloscope's volt range so that CH-1 and CH-2 are the same.
3. Set the oscilloscope to ALT mode.
4. Observe TP2P and TP2Q.
5. Adjust VR2B4 so that the amplitude of the two waveforms are the same.

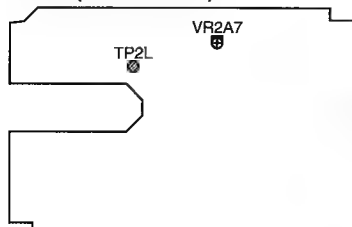
PCB-Y (SOLDER SIDE)



6. Y signal Noise Reduction (Normal Mode)		Adjustment purpose: Setting the levels of non-delay signal and 1 H delay signal in Y signal noise reduction to the same amplitude.	
		Symptom when incorrectly adjusted: The noise will turn black or white and get bigger.	
Measuring instrument and condition		VCR setup condition	
Oscilloscope (Probe 10:1)		Input signal	EXT signal (Color bar)
Test point	TP2L	Using tape	A tape
EXT trigger	-----	VCR condition	EP REC
Measurement range	DIV 10mV TIM 2msec	Using Jig.	-----

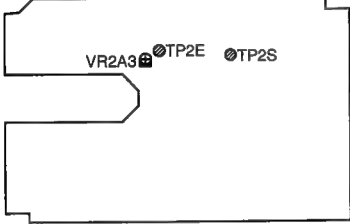
1. Set the VCR to VHS mode with the Video Function button.
2. Observe TP2L.
3. Adjust VR2A7 so that the video signal is minimum.

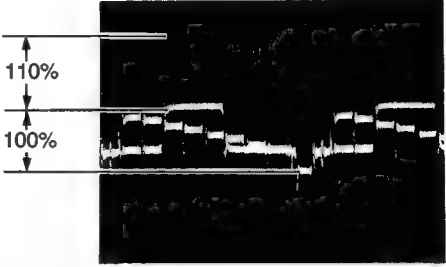
PCB-Y (SOLDER SIDE)



7.White Clip Dark Clip		Adjustment purpose: Sharpening of aperture in picture. Symptom when incorrectly adjusted: Blur image,white streaking,black streaking.		<ol style="list-style-type: none"> 1. Set the VCR to S-VHS mode with the Video Function button. 2. Observe TP2E. 3. Adjust VR2A3 so that the over-shoot appearing at the white peak side is 110%.
Measuring instrument and condition		VCR setup condition		
Oscilloscope (Probe 10:1)		Input signal	EXT signal (Color bar)	
Test point	TP2E	Using tape	A tape(S-VHS)	
EXT trigger	TP2S	VCR condition	EP REC	
Measurement range	DIV 10mV (VARIABLE mode) TIM 10μsec	Using Jig.	-----	

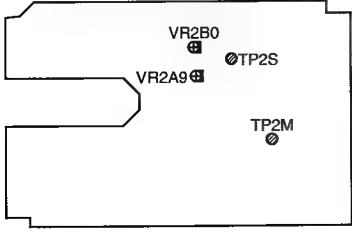
PCB-Y (SOLDER SIDE)

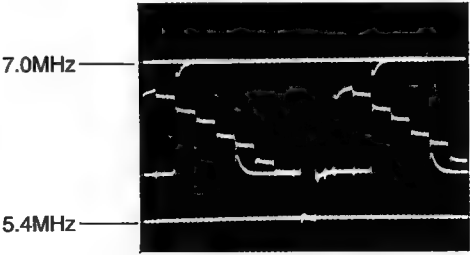


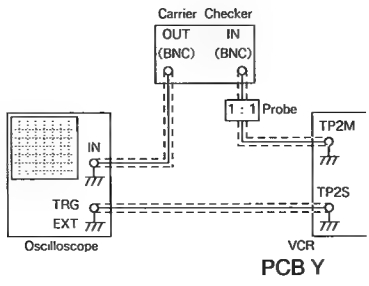


8.Carrier set, Deviation (S-VHS)		Adjustment purpose: FM carrier frequency and frequency deviations. Symptom when incorrectly adjusted: Too bright or too dark picture. Horizontal noise or out of sync.		<ol style="list-style-type: none"> 1. Set the VCR to S-VHS mode with the Video Function button. 2. Observe TP2M via the carrier checker. 3. Adjust VR2B0 and VR2A9 so that the response waveform 5.4MHz(sync tip)line and 7.0MHz (deviation) just touch each of white lines on the oscilloscope.
Measuring instrument and condition		VCR setup condition		
Oscilloscope (Probe 1:1)		Input signal	EXT signal (Color bar)	
Test point	TP2M	Using tape	A tape(S-VHS)	
EXT trigger	TP2S	VCR condition	EP REC	
Measurement range	DIV 0.2V TIM 10μsec	Using Jig.	Carrier checker	

PCB-Y (SOLDER SIDE)



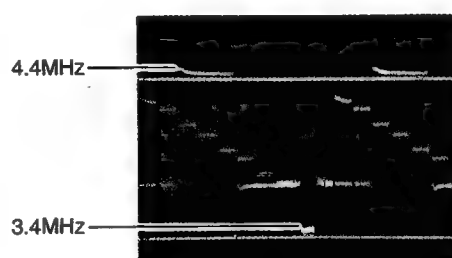
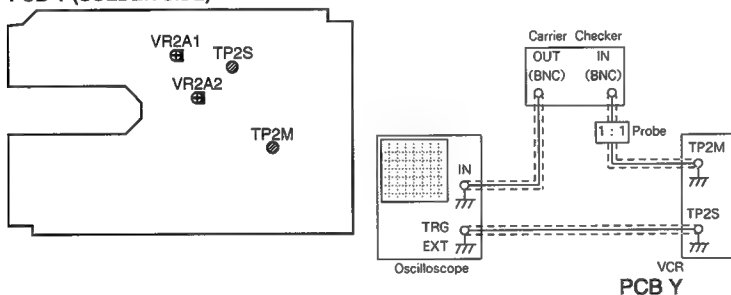




9.Carrier set, Deviation (N-VHS)	Adjustment purpose: FM carrier frequency and frequency deviations. Symptom when incorrectly adjusted: Too bright or too dark picture. Horizontal noise or out of sync.
-------------------------------------	---

Measuring instrument and condition		VCR setup condition		1. Set the VCR to VHS mode with the Video Function button. 2. Adjust VR2A2 so that the frequency of sync tip is 3.4 MHz. 3. Adjust VR2A1 so that the frequency deviation is 1.0 MHz. 4. Set the input range of the oscilloscope with the variable mode so that the range between 3.4 MHz and 4.4 MHz is four wide divisions. 5. Adjust VR2A2 so that the frequency of sync tip is increased by one smaller division of the oscilloscope.
Oscilloscope (Probe 1:1)		Input signal	EXT signal (Color bar)	
Test point	TP2M	Using tape	A tape	
EXT trigger	TP2S	VCR condition	EP REC	
Measurement range	DIV 0.2V TIM 10μsec	Using Jig.	Carrier Checker	

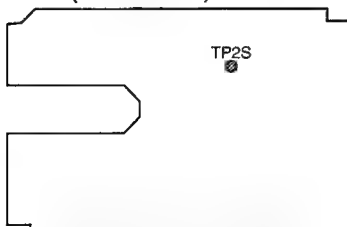
PCB-Y (SOLDER SIDE)



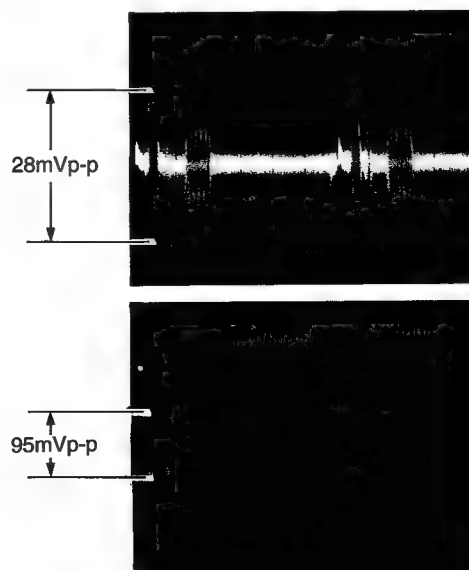
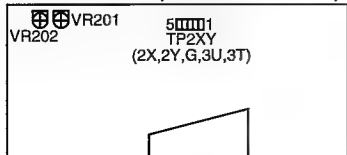
10.Y/C Recording Level	Adjustment purpose: Level setting video signal for recording. Symptom when incorrectly adjusted: Low luminance S/N, beats, color banding of chrominance signal or flicker.
------------------------	---

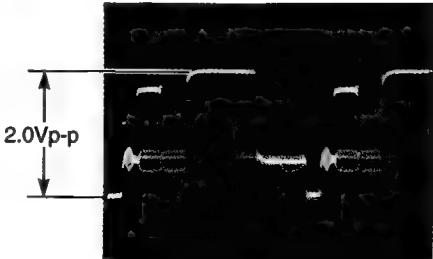
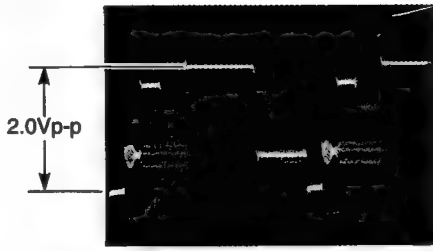
Measuring instrument and condition		VCR setup condition		1. Set the VCR to VHS mode with the Video Function button. 2. Observe TP2XY connector pin 4 and pin 5. 3. Turn VR202 fully counter-clockwise. 4. Adjust VR201 so that the Burst level is 28mVp-p. 5. Set the oscilloscope's probe to 10:1. 6. Adjust VR202 so that the amplitude of the horizontal sync is 95mVp-p.
Oscilloscope (Probe 1:1)		Input signal	EXT signal (Color bar)	
Test point	TP2XY connector (pin4 and pin5)	Using tape	A tape	
EXT trigger	TP2S	VCR condition	EP REC	
Measurement range	DIV 5mV TIM 10μsec	Using Jig.	REC CURRENT ADJ. JIG	

PCB-Y (SOLDER SIDE)

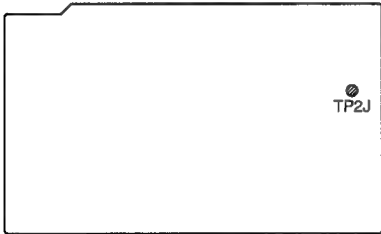


PCB-HEAD AMP (COMPONENT SIDE)

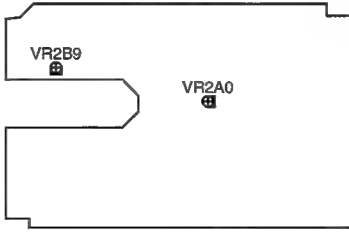


11. Playback Demodulation Sensitivity		Adjustment purpose: Setting each output level to the same when playing a tape recorded in VHS or S-VHS mode. Symptom when incorrectly adjusted: Both Y signal and color signal will be played back incorrectly.		<ol style="list-style-type: none"> 1. Be certain that nothing is connected to the VIDEO OUT terminal. 2. Observe TP2J. 3. Playback a VHS alignment tape (color bar) 4. Adjust VR2A0 so that the amplitude of the waveform is 2.0Vp-p. 5. Playback a S-VHS Alignment tape (color bar). 6. Adjust VR2B9 so that the amplitude of the waveform is 2.0Vp-p. <div style="display: flex; justify-content: space-around; align-items: center;">   </div>	
Measuring instrument and condition		VCR setup condition			
Oscilloscope (Probe 10:1)		Input signal	----		
Test point	TP2J	Using tape	Alignment tape (color bar)		
EXT trigger	----	VCR condition	Playback		
Measurement range	DIV 50mV TIM 10μsec	Using Jig.	----		

PCB-SIGNAL (SOLDER SIDE)

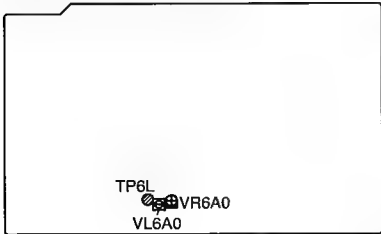


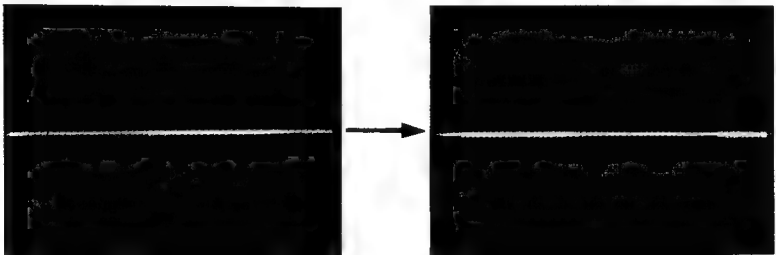
PCB-Y (SOLDER SIDE)



12. Noise Cancel		Adjustment purpose: S/N ratio and resolution color signal. Symptom when incorrectly adjusted: Poor S/N ratio; poor color signal resolution.		<ol style="list-style-type: none"> 1. Observe TP6L. 2. Alternate adjustments in the following sequence: VR6A0, VL6A0 so that the leakage signal is minimum. 	
Measuring instrument and condition		VCR setup condition			
Oscilloscope (Probe 10:1)		Input signal	----		
Test point	TP6L	Using tape	Alignment tape (color bar)		
EXT trigger	----	VCR condition	Playback		
Measurement range	DIV 10mV TIM 2msec	Using Jig.	----		

PCB-SIGNAL (SOLDER SIDE)





[Normal Audio Circuit] 13.Audio Bias Level		Adjustment purpose: Audio bias level setting for recording. Symptom when incorrectly adjusted: Poor Audio response in high frequency area.	
Measuring instrument and condition		VCR setup condition	
Audio Tester		Input signal	EXT signal (Color bar)
Test point	TP3E TP3F	Using tape	A tape
EXT trigger	----	VCR condition	SP REC
Measurement range	----	Using Jig.	High pass filter

1. Insert a Shorted RCA type Phono-plug into the AUDIO IN terminal.

2. Observe TP3E and TP3F with an Audio Tester via a high pass filter.

3. Confirm that the monitor TV etc. does not affect the indication of the audio tester and then adjust VR3311 so that the level is 2.8mVr.m.s.

Note 1:
Be sure that the audio tester housing never touches the VCR chassis.

Note 2:
Never set the VCR to PLAY mode with the audio tester connected.
(The audio amplifier will be overloaded.)

PCB-SIGNAL (SOLDER SIDE)

C - ELE 16V/10 µ F

[Hi-Fi Audio Circuit] 14.OSC Frequency		Adjustment purpose: Setting the FM carrier frequency of Hi-Fi audio signal. Symptom when incorrectly adjusted: Buzz in the sound.	
Measuring instrument and condition		VCR setup condition	
Frequency Counter		Input signal	----
Test point	CH-1:BPF3A0 (pin1 and pin5)	Using tape	----
EXT trigger	----	VCR condition	STOP
Measurement range	----	Using Jig.	----

1. Set the MONITOR SW to Hi-Fi mode and INPUT SW to EXT (L1) mode.

2. Set the REC-LEVEL VR and L/R BALANCE VR to the center click.

3. Connect the AUDIO IN terminals to GND(L-CH and R-CH).

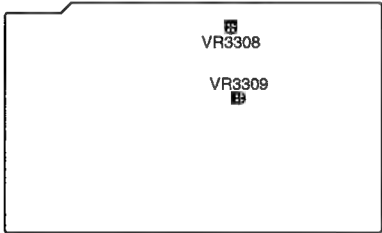
4. Observe TP3L.

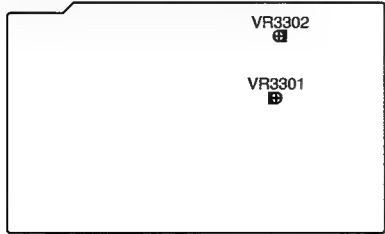
5. Adjust VR3303 so that the frequency is 1.3MHz.

6. Observe TP3R.

7. Adjust VR3304 so that the frequency is 1.7MHz.

PCB-SIGNAL (SOLDER SIDE)

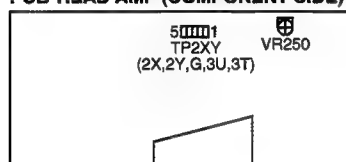
15. EE Output Level		Adjustment purpose: Output level of Audio signal at Stop mode (EE Level).	
		Symptom when incorrectly adjusted: Too high or too low audio level.	
Measuring instrument and condition		VCR setup condition	
Audio Tester		Input signal	1kHz, -8dBm
Test point	AUDIO OUT terminal (L-CH and R-CH)	Using tape	---
EXT trigger	---	VCR condition	STOP
Measurement range	---	Using Jig.	---
PCB-SIGNAL (SOLDER SIDE) 		1. Set the MONITOR SW to Hi-Fi mode and INPUT SW to EXT (L1) mode.	
		2. Turn the REC-LEVEL VR and L/R BALANCE VR to the center click.	
		3. Supply a sine wave (1kHz, -8dBm) to AUDIO IN terminal (L-CH and R-CH).	
		4. Observe the audio level at the AUDIO OUT terminal (L-CH).	
		5. Adjust VR3309 so that the output level is -8dBm.	
		6. Observe the audio level at the AUDIO OUT terminal (R-CH).	
		7. Adjust VR3308 so that the output level is -8dBm.	

16. FM Frequency Deviation		Adjustment purpose: FM frequency deviation of Hi-Fi sound.	
		Symptom when incorrectly adjusted: Too high or too low recording and playback levels of Hi-Fi sound.	
Measuring instrument and condition		VCR set up condition	
Audio Tester		Input signal	---
Test point	AUDIO OUT terminal (L-CH and R-CH)	Using tape	Alignment tape (NM6KH2 A, monoscope)
EXT trigger	---	VCR condition	STOP
Measurement range	---	Using Jig.	---
PCB-SIGNAL (SOLDER SIDE) 		1. Set the MONITOR SW to Hi-Fi mode.	
		2. Set the input button on the remote hand unit to EXT mode.	
		3. Observe AUDIO OUT terminal (L-CH).	
		4. Adjust VR3301 so that the output level is -8dBm.	
		5. Observe AUDIO OUT terminal (R-CH).	
		6. Adjust VR3302 so that the output level is -8dBm.	

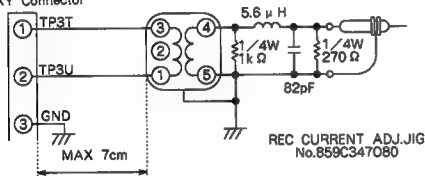
17. FM REC Level	Adjustment purpose: Setting of record level of Hi-Fi audio signal. Symptom when incorrectly adjusted: Wow/flutter in audio. Poor S/N in video signal.
------------------	--

Measuring instrument and condition		VCR setup condition		1. Set the MONITOR SW to Hi-Fi mode and INPUT SW to EXT (L1) mode. 2. Set the REC-LEVEL VR and L/R BALANCE VR to center click. 3. Connect the AUDIO IN terminals to GND(L-CH and R-CH). 4. Observe TP2XY connector pin1 and pin2 via the REC CURRENT ADJ. JIG. 5. Adjust VR250 so that the amplitude of the waveform is 340mVp-p.
Oscilloscope (Probe 10:1)		Input signal	----	
Test point	TP2XY connector (pin1 and pin2)	Using tape	A tape	
EXT trigger	----	VCR condition	EP REC	
Measurement range	DIV 10mV TIM 50μsec	Using Jig.	REC CURRENT ADJ. JIG	

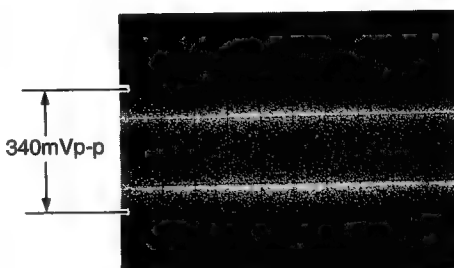
PCB-HEAD AMP (COMPONENT SIDE)



Head Amp PCB
TP2XY Connector



340mVp-p

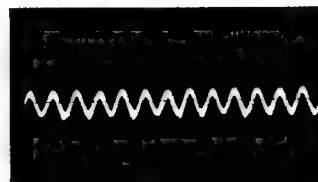
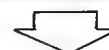
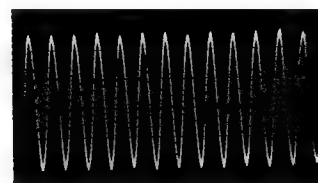
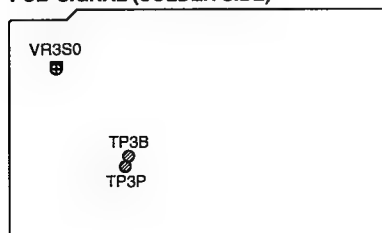


[Multi Sound Circuit] 18. Stereo LPF

Adjustment purpose: Set up of characteristics of Stereo and SAP filters by setting up Stereo LPF characteristic.
Symptom when incorrectly adjusted: Low detection sensitivity or poor S/N.


Measuring instrument and condition		VCR setup condition		1. Set the audio monitor SW to Hi-Fi mode. 2. Set the input select SW to TUNER mode. 3. Set the REC-LEVEL control(VR7A1) and REC-BALANCE control(VR7A2) to center click stop position. 4. Ground TP3P. 5. Apply a 22.9kHz, 0.7Vp-p sine wave to TP3B. 6. Observe AUDIO OUT terminal(L-CH or R-CH). 7. Adjust VR3S0 for minimum level.
Oscilloscope (Probe 10:1)		Input signal	RF signal (Color bar)	
Test point	AUDIO OUT terminal(L-CH or R-CH)	Using tape	---	
EXT trigger	TP3B	VCR condition	STOP	
Measurement range	DIV 5mV TIM 50 μ sec	Using Jig.	---	

PCB-SIGNAL (SOLDER SIDE)



19. Stereo VCO		Adjustment purpose: Set up of Reference Frequency for Control Signal detection.	
		Symptom when incorrectly adjusted: Unable to detect Multi Sound.	
Measuring instrument and condition		VCR setup condition	
DC Voltmeter		Input signal	---
Test point	TP3C	Using tape	---
EXT trigger	---	VCR condition	STOP
Measurement range	---	Using Jig.	---

PCB-SIGNAL (SOLDER SIDE)




1. Set the audio monitor SW to Hi-Fi mode.
2. Set the input select SW to TUNER mode.
3. Set the REC-LEVEL VR and REC-BALANCE VR to center click stop position.
4. Ground TP3P(SIGNAL PCB).
5. Observe TP3C and read the DC voltage in the condition of no input signal at TP3B.
6. Apply a 15.734kHz, 138mVp-p sine wave to TP3B.
7. Adjust VR3S1 so that the DC voltage of TP3C is equivalent with the value of step 5.

Note:
Once the adjustment is completed, connect an oscilloscope to TP3C and observe the signal. Confirm that the waveform present is stable and without spurious components.

20. Separation 1		Adjustment purpose: Set up of Multi Sound separation characteristic.	
		Symptom when incorrectly adjusted: Poor Multi Sound separation.	
Measuring instrument and condition		VCR setup condition	
Oscilloscope (Probe 10:1)		Input signal	---
Test point	AUDIO OUT terminal(R-CH)	Using tape	---
EXT trigger	---	VCR condition	STOP
Measurement range	---	Using Jig.	---

PCB-SIGNAL (SOLDER SIDE)

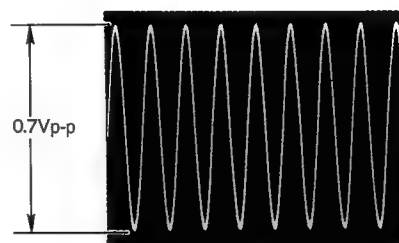
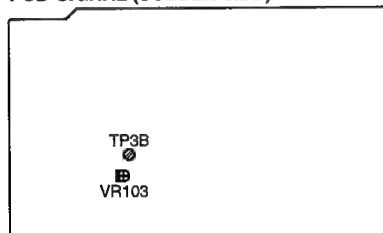


1. Set the audio monitor SW to Hi-Fi mode.
2. Set the input select SW to TUNER mode.
3. Set the REC-LEVEL VR and REC-BALANCE VR to center click stop position.
4. Ground TP3P.
5. Preset VR3S2 to the mechanical center position.
6. Apply Composite signal(STEREO L-CH only, 300Hz 100%) to TP3B.
7. Observe AUDIO OUT terminal(R-CH).
8. Adjust VR3S3 for minimum level.
9. Apply Composite signal(STEREO L-CH only, 3kHz 100%) to TP3B.
10. Observe AUDIO OUT terminal(R-CH).
11. Adjust VR3S2 for minimum level.
12. Repeat adjustment procedure 8 to 11.

21. SIF Output Level	Adjustment purpose: Set up of Audio output level. Symptom when incorrectly adjusted: Too loud or too low audio level.
----------------------	--

Measuring instrument and condition		VCR setup condition		1. Set the audio monitor SW to Hi-Fi mode. 2. Set the input select SW to TUNER mode. 3. Set the REC-LEVEL VR and REC-BALANCE VR to center click stop position. 4. Ground TP3B through a capacitor(4700 μ F-J). 5. Observe TP3B. 6. Adjust VR103 for a level of 0.7Vp-p.
Oscilloscope (Probe 10:1)		Input signal	RF signal(Audio signal 400Hz,100%)	
Test point	TP3B	Using tape	---	
EXT trigger	---	VCR condition	STOP	
Measurement range	DIV 10mV TIM 2msec	Using Jig.	----	

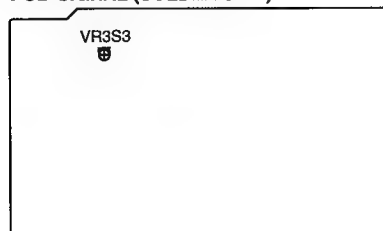
PCB-SIGNAL (SOLDER SIDE)



22. Separation 2	Adjustment purpose: Set up of Multi Sound separation characteristic in Tuner and Multi Sound demodulation circuit. Symptom when incorrectly adjusted: Poor Multi Sound L/R separation.
------------------	---

Measuring instrument and condition		VCR setup condition		1. Set the audio monitor SW to Hi-Fi mode. 2. Set the input select SW to TUNER mode. 3. Set the REC-LEVEL VR and REC-BALANCE VR to center click stop position. 4. Observe AUDIO OUT terminal (R-CH). 5. Adjust VR3S3 for minimum level. Note: R-CH audio signal has no modulation.
Oscilloscope (Probe 10:1)		Input signal	RF signal(Audio signal 300Hz,100%)	
Test point	AUDIO OUT terminal (R-CH)	Using tape	---	
EXT trigger	---	VCR condition	STOP	
Measurement range	DIV 50mV TIM 2msec	Using Jig.	---	

PCB-SIGNAL (SOLDER SIDE)



[Timer Circuit] 23. Clock osc Frequency		Adjustment purpose: Accuracy of clock. Symptom when incorrectly adjusted: Poor clock accuracy.	
Measuring instrument and condition		VCR setup condition	
Frequency counter		Input signal	----
Test point	TP8A	Using tape	----
EXT trigger	----	VCR condition	Stand by
Measurement range	PERIOD mode	Using Jig.	----

1. Observe TP8A with a Frequency Counter.
2. Adjust VC8A0 so that the period at TP8A is $5.859375 \pm 0.000040 \text{ msec}$ ($170.666666 \pm 0.001165 \text{ Hz}$).

PCB-TIMER (COMPONENT SIDE)

24. Display Position		Adjustment purpose: Positioning of display characters. Symptom when incorrectly adjusted: Incorrect position.	
Measuring instrument and condition		VCR setup condition	
Oscilloscope (Probe 10:1)		Input signal	----
Test point	TP2J	Using tape	----
EXT trigger	----	VCR condition	STOP
Measurement range	DIV 50mV TIM 10μsec	Using Jig.	----

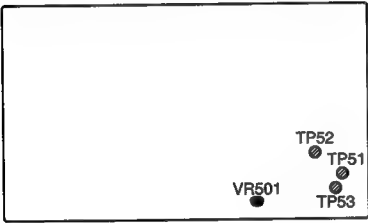
1. Press the MENU button on the remote hand unit and display the Main Menu.
2. Observe TP2J.
3. Adjust VC501 so that the time difference between the falling edge of H-SYNC and end of character signal is 54μsec.

PCB-SIGNAL (SOLDER SIDE)

PCB-CONTROL (COMPONENT SIDE)

25. List-2 H-SYNC Frequency		Adjustment purpose: Set up Horizontal Sync. Frequency for digital screen display. Symptom when incorrectly adjusted: Noise-like display.	
Measuring instrument and condition		VCR setup condition	
Frequency counter		Input signal	----
Test point	TP51	Using tape	----
EXT trigger	----	VCR condition	STOP
Measurement range	----	Using Jig.	----

PCB-CONTROL (COMPONENT SIDE)



MECHANICAL ADJUSTMENT AND REPLACEMENT

1. Cleaning of Deck

The following parts require cleaning whenever serviced to maintain satisfactory performance.

1-1 Video Head

A. Clean the video heads in the following method if dust and other foreign objects on the video heads disturb the normal playback of images:

Dampen video head cleaning cloth with alcohol. Hold the cloth against the drum and turn the drum slowly counterclockwise to clean.

Note:

Do not directly touch the head attached to the upper drum. The head is very hard but brittle to impact, especially in the vertical direction.

Do not apply force in the vertical direction.

B. Allow residual alcohol to dry thoroughly before running tape. Otherwise, the liquid may stick to and damage the tape.

1-2 Tape Transport(Refer to Fig. 1-1.)

Clean the following parts of the tape transport.

1. Tension regulation arm S
2. Tension arm
3. Supply guide pole
4. FE head
5. Impedance roller
6. Supply guide roller
7. Supply slant pole
8. Upper and lower drum

9. Takeup slant pole
10. Takeup guide roller
11. A/C head
12. Takeup guide pole
13. Pinch roller
14. Capstan shaft
15. Takeup guide arm
16. Tension regulation arm T

A. Clean the tape transport with gauze dampened with alcohol, except the supply guide roller, takeup guide roller and pinch roller. If Guide rollers and pinch roller are stained with dust, clean them with dry gauze or exchange them for new parts.

B. Allow residual alcohol to dry thoroughly before running a tape. Otherwise the liquid may stick to and damage the tape.

1-3 Reel Disk Drive System

Clean the reel disk braking surfaces and the reel belt.

A. Clean the reel disk braking surfaces with gauze dampened alcohol.

- After the alcohol dries up completely, perform "Adjustment to Back Tension and Tension Position" (Item 3-1).

B. Reel belt is stained with dust, clean it with dry gauze or exchange it for new part.

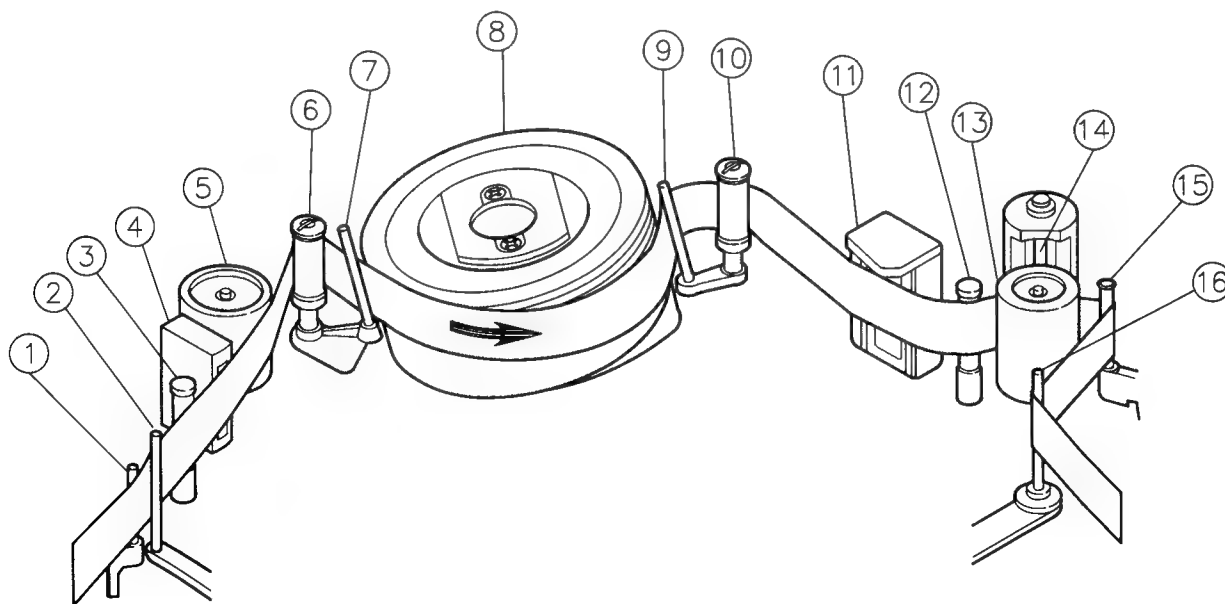


Fig. 1-1

F0D001

2. Replacement of Major Parts

2-1 Cassette Housing

2-1-1 Removal(Refer to Fig. 2-1-1~2-1-2.)

- Set the VCR to the eject mode.
- Remove the top panel, bottom panel, and front panel.
- Unfasten the snap of the cable holder and remove the cable holder from the cassette housing as shown in Fig.2-1-1.
- Unscrew four cassette housing fastening screws (a ~ d). Raise the cassette housing slowly in the direction shown by the arrow.(Refer to Fig. 2-1-2.)

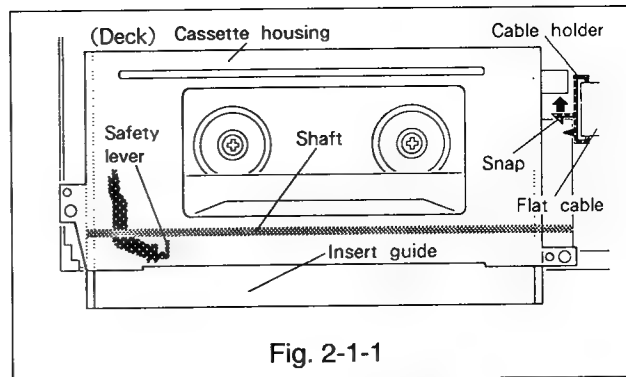


Fig. 2-1-1

2-1-2 Installation(Refer to Fig.2-1-1~2-1-3.)

- Slowly lower the cassette housing onto the main plate of the deck so that the safety lever enters between the insert guide and the shaft as shown in Fig. 2-1-1. Align the two positioning holes (e, f) and the two U holes (g, h) located on the cassette housing with the matching holes in the deck.
- In step A above, if the front loading gear of the cassette housing does NOT engage the boss on the main plate, carefully push the gear toward the front of the VCR using a small-diameter screwdriver, as illustrated in Fig. 2-1-3. If the gear still will not engage, rotate the Front Loading Gear a few degrees from below the deck until the gear engages the boss correctly.
- Fasten the housing to the deck with the four screws (a ~ d).(Refer to Fig. 2-1-2.)

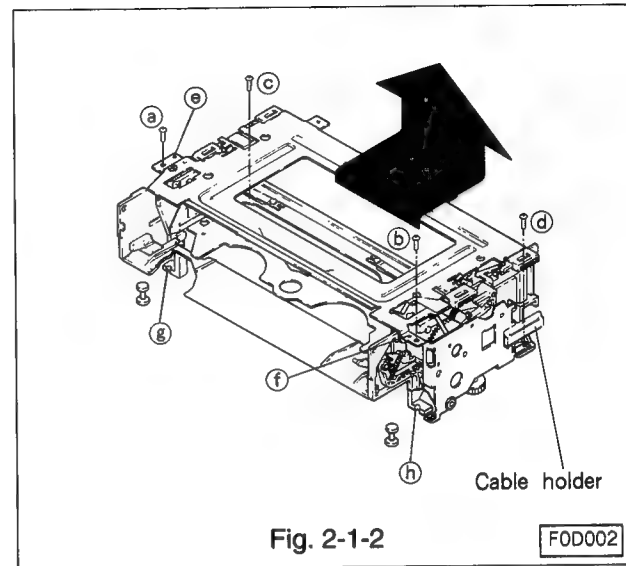


Fig. 2-1-2

2-2 Lock arm and Drive gear

2-2-1 Removal(Refer to Fig. 2-1-3~2-2.)

- Unfasten four snaps (a ~ d) as shown in Fig. 2-1-3, and remove the side plate TU.
- Turn the FL SW lever clockwise to separate the FL SW lever from the drive gear, and pull the lock arm and drive gear to remove them from the shaft as shown in Fig. 2-2.

2-2-2 Installation(Refer to Fig. 2-1-3~2-2.)

- Install the drive gear on the shaft as shown in Fig. 2-2.
- Line the matching mark on the drive gear and beginning of gear section on the lock arm as shown in Fig. 2-2, and install the lock arm.
- Install the side plate TU to the cassette housing, and secure it with four snaps (a ~ d) as shown in Fig. 2-1-3.

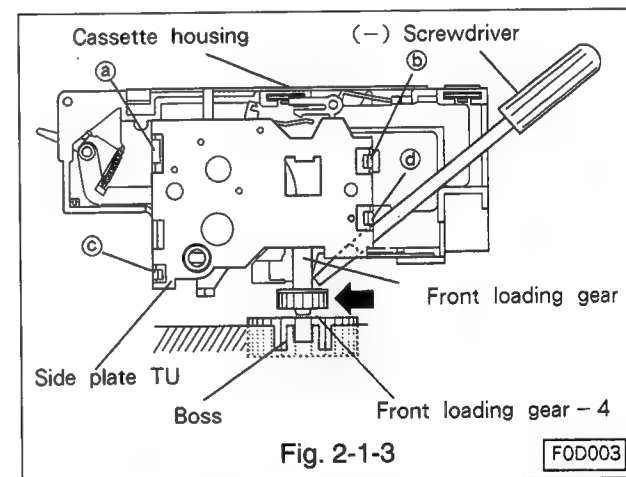


Fig. 2-1-3

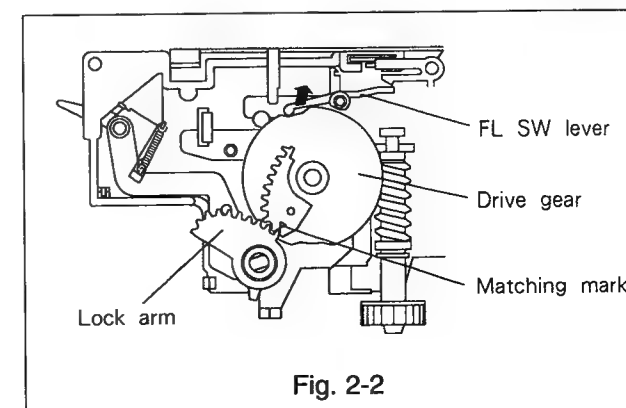


Fig. 2-2

2-3 Drum Assembly

2-3-1 Removal(Refer to Fig. 2-3-1~2-3-3.)

- A. Unscrew the brush fastening screw and remove the brush.(Refer to Fig. 2-3-1.)
- B. Unscrew two fastening screws(**(a)** , **(b)**) and remove the PCB-HEAD AMP which is connected to the drum assembly.

Note:

The cable and connector between the drum and head amplifier may be damaged if the cable is pulled strongly, as the cable is short.

Remove the shield cap of the PCB, raise the PCB slightly and disconnect the FPC cable.

(Removal method for the FPC cable connector and stopper is shown in Fig. 2-3-3.)

Disconnect the ground wire and remove the PCB-HEAD AMP.

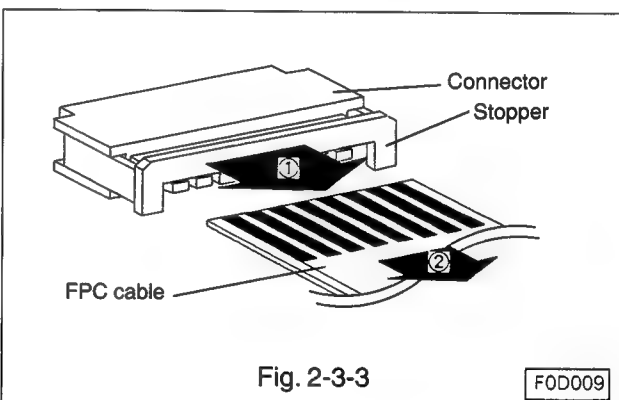
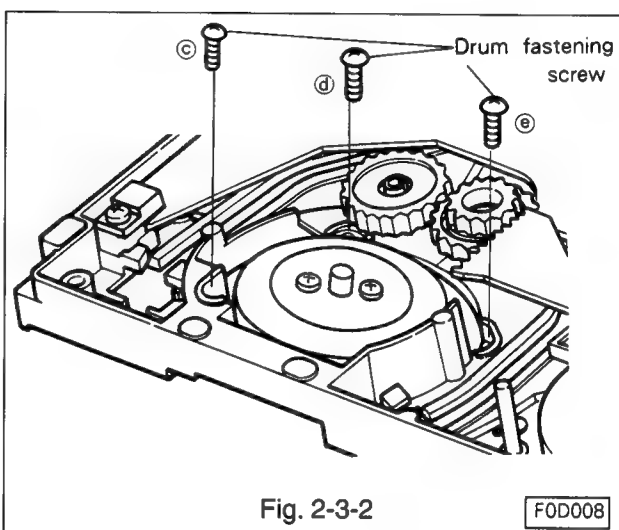
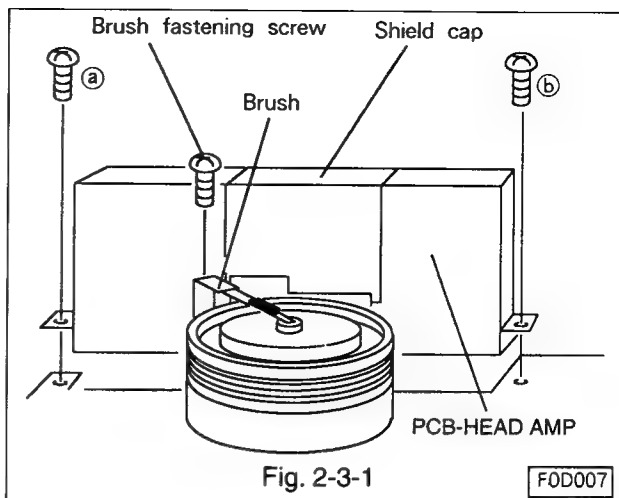
- C. Unscrew three drum fastening screws(**(c)** ~ **(e)**)from the reverse side of the deck.(Refer to Fig. 2-3-2.)
- D. Remove the drum assembly by raising it with care not to touch other parts around the drum assembly.
- E. Disconnect the connectors from the drum assembly.
(Refer to Fig. 2-3-3.)

2-3-2 Installation (Refer to Fig. 2-3-1,2-3-2.)

- A. Connect the connectors to a new drum assembly.
- B. Place the new drum assembly on the main plate of the deck slowly with care not to touch other parts.
- C. Fasten the drum assembly with three fastening screws(**(c)** ~ **(e)**)on the reverse side of the deck. (Refer to Fig. 2-3-2.)
- D. Connect the PCB-HEAD AMP to the drum assembly and fasten the PCB with two screws(**(a)** , **(b)**).(Refer to Fig. 2-3-1.)

Note:

Conduct the mechanism interchangeability adjustment outlined in Para.3 to give optimum performance when the drum assembly is replaced.



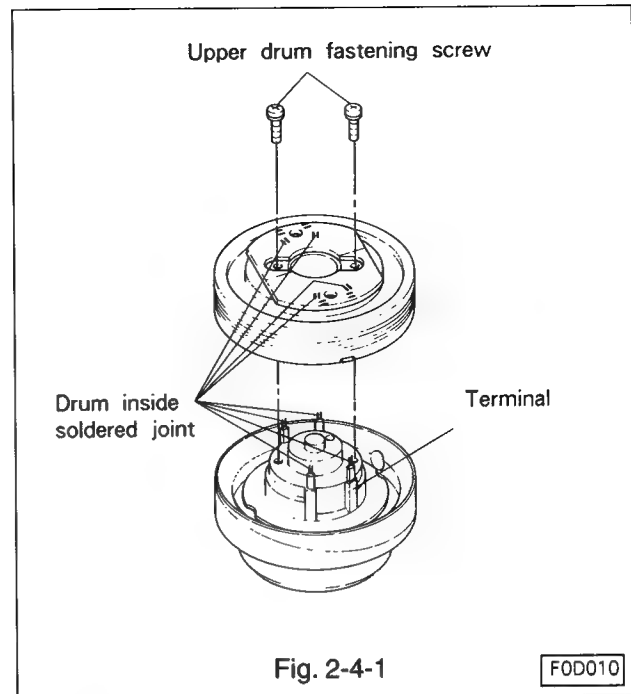
2-4 Upper Drum

2-4-1 Removal(Refer to Fig. 2-4-1.)

- Unscrew the brush fastening screw and remove the brush.
- Unsolder two inside soldered terminals of each head on the upper drum.
- Unscrew the upper drum fastening screws.
- Remove the upper drum slowly and carefully.

Note:

If the upper drum is difficult to remove, heat the upper drum fastening screw holes with a soldering iron, and the drum can be easily removed.



2-4-2 Installation(Refer to Fig. 2-4-1.)

Note:

Handle the upper drum carefully as the video heads are fragile.

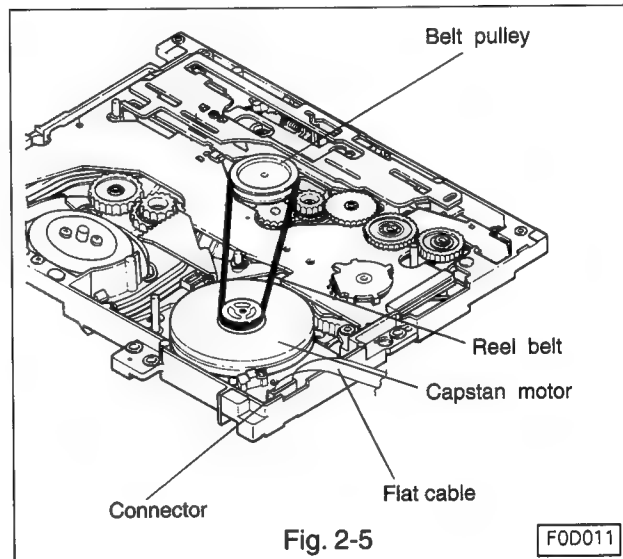
- Position the lower drum so that the hole in the shaft faces the operator. Align the upper drum with the lower drum so that the CH1 mark on the upper drum is on the right side, and couple the drums.
- Fasten the upper drum with two screws.(Tighten the screws alternately.)
- Solder the terminals not soldered on the upper drum.
- Clean the video heads as outlined in Para. 1-1.

2-5 Reel Belt(Refer to Fig. 2-5)

- Remove the reel belt from the capstan motor and the belt pulley.
- Install a new reel belt.

Note:

Make certain that the new belt is free from grease, before installing.



2-6 Capstan Motor

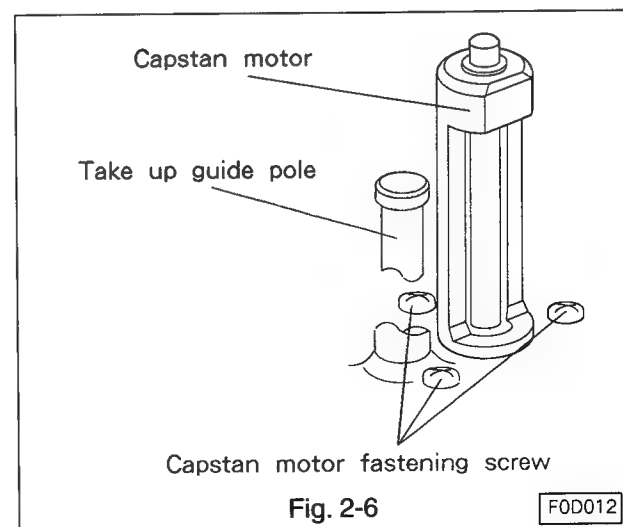
2-6-1 Removal(Refer to Fig. 2-5, 2-6)

- Disconnect the flat cable.
- Remove the reel belt.(Refer to Fig. 2-5.)
- Remove three fastening screws shown in Fig. 2-6 and remove the capstan motor.

CAUTION:

Restrain the capstan motor as the three screws are removed, since an un-restrained motor may damage other parts of the deck.

When performing removal or installation of the capstan motor, take care that the outside of the rotor's rim is not greased.(Refer to Fig.2-5.) If greasy components are attached on the outside of the rotor's rim, wipe them off with a dry cloth because they may cause defects during special effects playback.



2-6-2 Installation(Refer to Fig. 2-5, 2-6.)

- Fasten the motor with three fastening screws.(Refer to Fig. 2-6.)
- Install the reel belt.
- Connect the flat cable.

2-7 Loading Motor

2-7-1 Removal(Refer to Fig. 2-7-1, 2-7-2.)

- Set the VCR to the eject mode.
- Disconnect the wires from the loading motor.
- Remove two stoppers securing the motor and the motor holder plate.(Refer to Fig. 2-7-2.)
- Slide the motor and motor holder plate away, and then raise them to remove.
- Remove the belt-LM from the loading motor and the pulley-L.(TYPE-B only)(Refer to Fig. 2-7-1.)
- Unscrew two screws and detach the motor holder plate from the motor.
- Disconnect the coupling from the motor.

2-7-2 Installation(Refer to Fig. 2-7-1~2-7-3.)

- Fasten the coupling to a new loading motor.(Refer to Fig. 2-7-3.)
- Fasten the motor holder plate to the motor with two screws.(Refer to Fig. 2-7-1.)
- Install the belt-LM.(TYPE-B only)
- Place the motor and motor holder plate in the motor holder to the rest of the deck.
- Turn the motor shaft so that the coupling on the loading motors matches the worm gear of the motor holder. Slide the loading motor forward and secure it with the stoppers.
- Solder the leads to the loading motor. (Brown lead wire to the positive terminal and red lead wire to the negative terminal.)

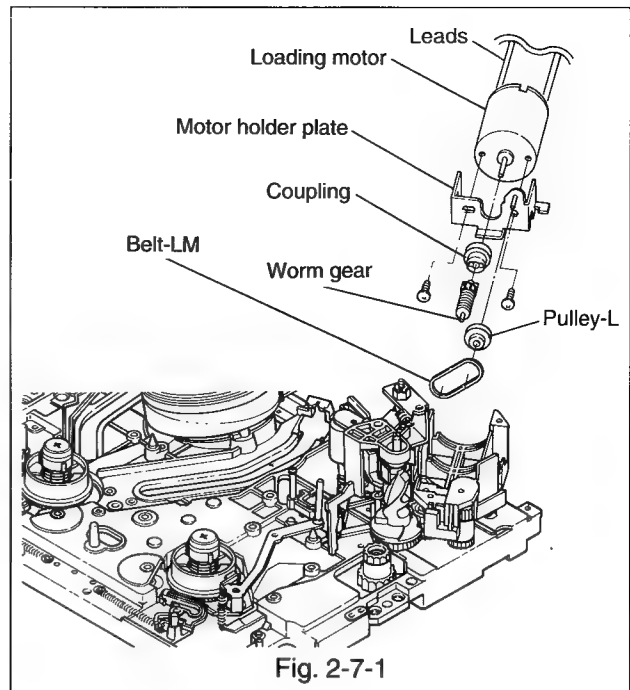


Fig. 2-7-1

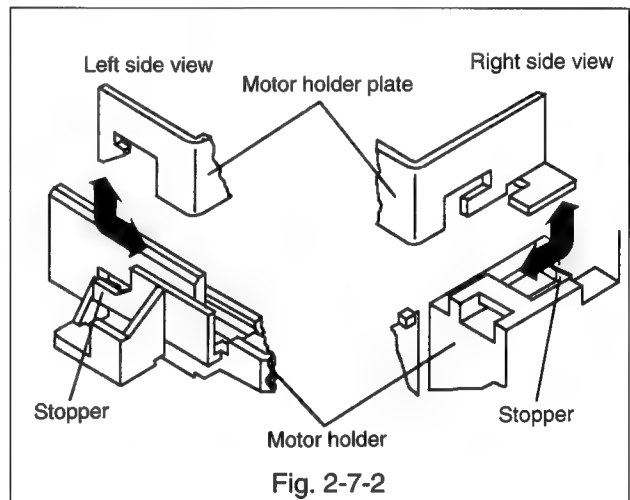


Fig. 2-7-2

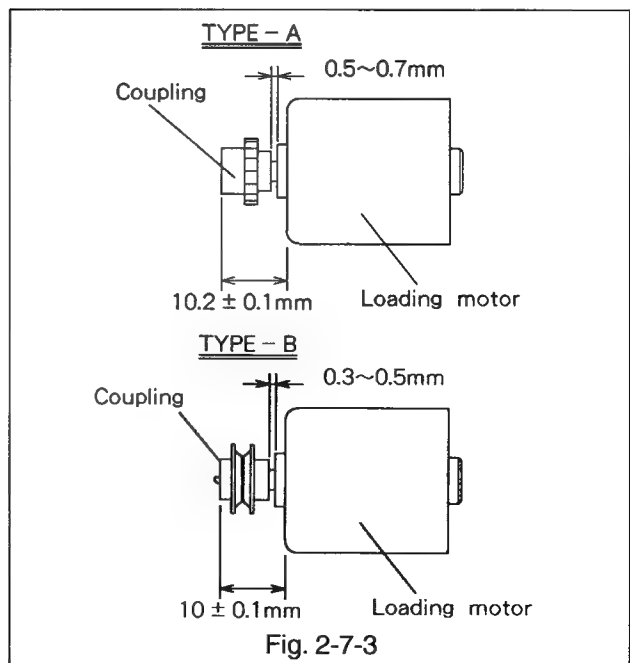


Fig. 2-7-3

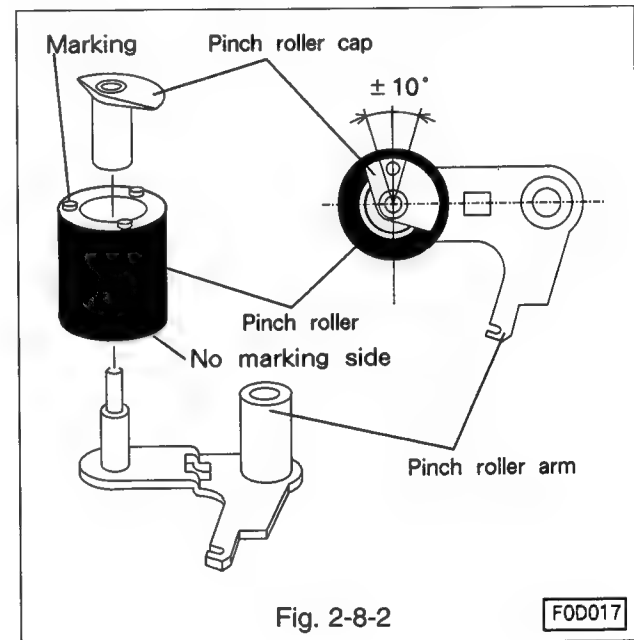
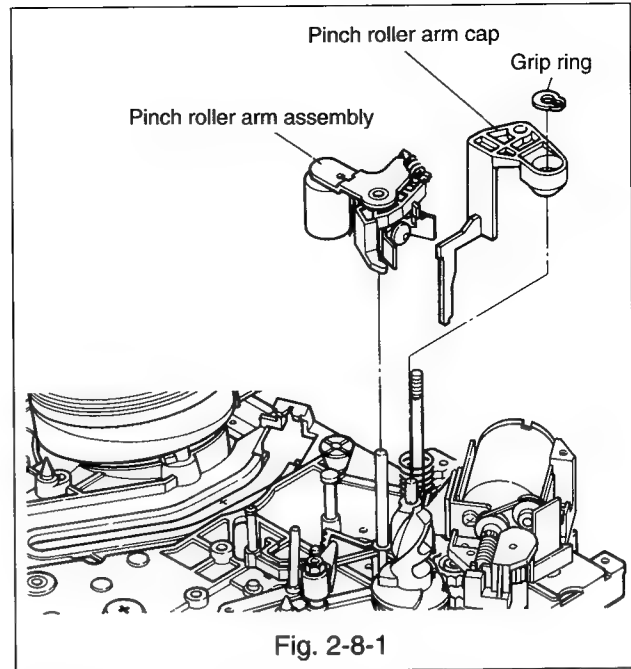
2-8 Pinch Roller

2-8-1 Removal(Refer to Fig. 2-8-1, 2-8-2.)

- A. Set the VCR to the eject mode.
- B. Remove the pinch roller arm cap and the grip ring which secures the pinch roller arm assembly.(Refer to Fig. 2-8-1.)
- C. Pull the pinch roller arm assembly upwards to remove.
- D. Remove the pinch roller cap from the pinch roller arm, and remove the pinch roller. (Refer to Fig. 2-8-2.)

2-8-2 Installation(Refer to Fig. 2-8-1,2-8-2.)

- A. Assemble the pinch roller cap and the pinch roller to the pinch roller arm by exercising care with the installation angle of the pinch roller cap and the marking of the Pinch Roller. (Refer to Fig. 2-8-2.)
- B. Assemble the pinch roller assembly to the shaft on the main plate.(Refer to Fig. 2-8-1.)
- C. Secure the pinch roller arm assembly with the pinch roller arm cap and the grip ring.



2-9 Mode Switch

Note:

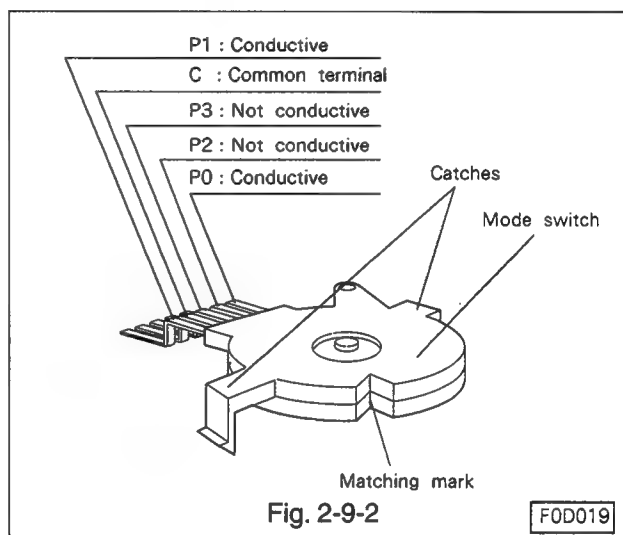
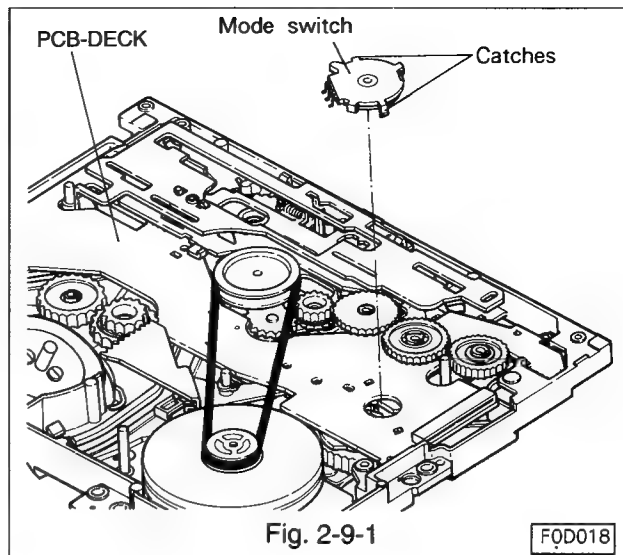
Replace the mode switch with the VCR in the eject mode.

2-9-1 Removal(Refer to Fig. 2-9-1)

- Unsolder the five soldered joints of the mode switch from the PCB-DECK.
- Unfasten two catches fastening the switch to the PCB-DECK assembly.
(Exercise care as the catches may be broken off.)
- Remove the mode switch slowly while insuring that the soldered joints are all unsoldered.

2-9-2 Installation(Refer to Fig. 2-9-1,2-9-2.)

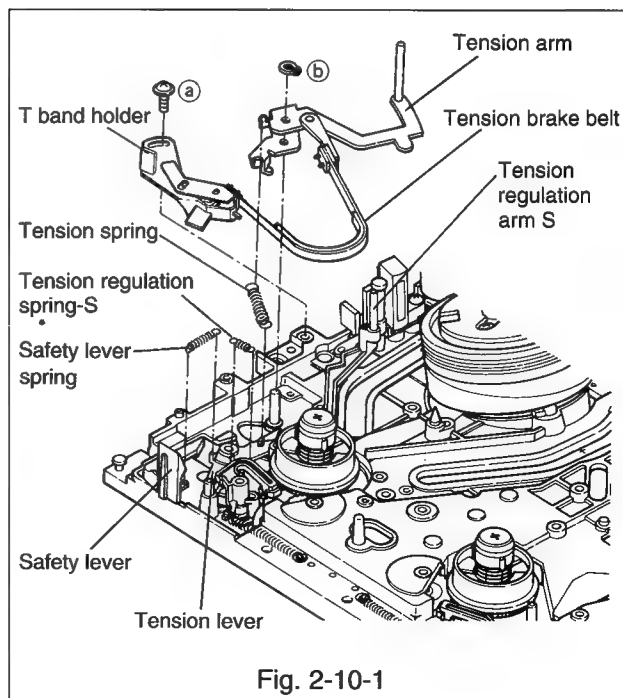
- Line the matching marks of the mode switch. (Refer to Fig. 2-9-2.)
- Finely adjust the mode switch so that continuity at each terminal shall be as given in the illustration.
- Fasten the switch to the PCB-DECK with care so that the switch does not turn, and secure with two catches.(Refer to Fig. 2-9-1.)
- Solder the five terminals which connect the mode switch to the PCB-DECK assembly.



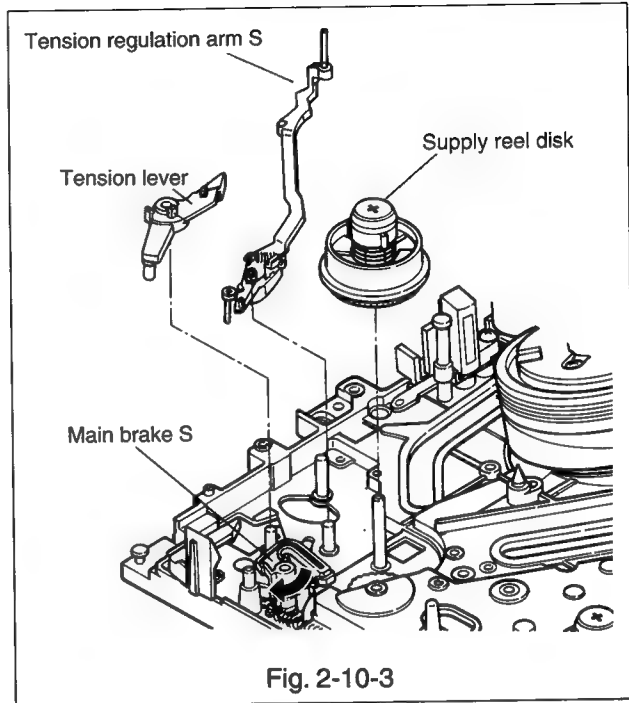
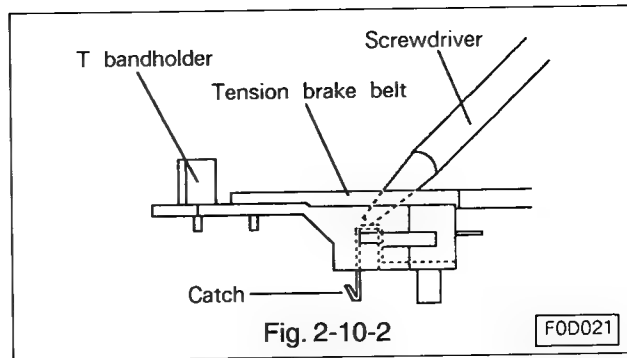
2-10 Supply Reel Disk

2-10-1 Removal (Refer to Fig. 2-10-1~2-10-3.)

- Remove the cassette housing as in Para. 2-1-1.
- Unscrew the screw (a) which fastens the T band holder. (Refer to Fig. 2-10-1.)
- Unfasten the catch of the T band holder from the main plate with a small screw driver etc. as shown in Fig. 2-10-2. Raise and remove the T band holder with care not to score or dirty the tension brake belt.
- Detach the tension spring from the tension arm and the tension lever.(Refer to Fig. 2-10-1.)
- Remove the grip ring (b) which secures the tension arm. Raise the tension arm upward to remove it from the shaft.
- Detach the tension regulation spring S from the tension regulating arm S and the tension lever.
- Detach the safety lever spring from the safety lever and the tension lever.



- H. Raise the tension lever avoiding the main brake S and remove the lever from the shaft.(Refer to Fig. 2-10-3.)
- I. Raise the tension regulation arm S and remove it from the shaft.
- J. While turning the main brake S slightly clockwise to separate the brake from the supply reel disk, and raise the supply reel disk to remove it from the shaft.(Refer to Fig. 2-10-3.)



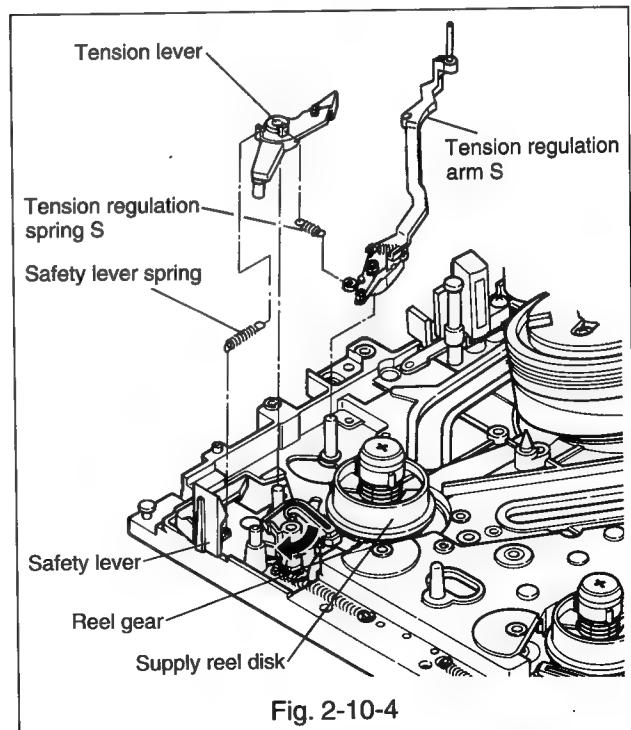
2-10-2 Installation(Refer to Fig. 2-10-4~2-10-7.)

- A. Turn the main brake S slightly clockwise to separate it from the supply reel disk shaft, and mount the supply reel disk on the shaft so that the reel gear meshes with the gear of the supply reel disk.
- B. Assemble the tension regulation arm S to the shaft.
- C. Assemble the tension lever to the shaft avoiding the main brake S.

Note:

Install the tension lever so that the pin at the lower part of the lever shall be in front of the slot in the main plate(viewing the front).

- D. Fasten the safety lever spring to the safety lever and the tension lever.
- E. Fasten the tension regulation spring S to the tension regulation arm S and the tension lever.



- F. Assemble the tension arm to the shaft and secure the arm with the grip ring (b). (Refer to Fig. 2-10-5.)
- G. Fasten the tension spring to the tension arm and the tension lever. (Refer to Fig. 2-10-5.)
- H. Assemble the T band holder to the main plate with care not to score or dirty the tension brake belt, and secure the holder with the screw (a) lightly. (Refer to Fig. 2-10-5.)

Note:

In the assembly of the T band holder, make certain that the hook of the holder positively engages with the reverse side of the main plate.

If the hook is difficult to engage with the main plate, push the hook lightly with a small screw driver etc. (Refer to Fig. 2-10-2.)

- I. Separate the main brake S and the tension regulation arm S from the supply reel disk and make certain that the disk turns freely. (Refer to Fig. 2-10-3.)
- J. Place the reel disk height adjusting jig (Part Number 859C342O20) in the reference position on the main plate. (Refer to Fig. 2-10-6.)
- K. Slowly turn the jig about point A and make sure that the height of the supply reel disk flange agrees with the point B on the supply disk adjusting side of the jig (marked SP). (Refer to Fig. 2-10-7.)
- L. If the height of the disk is not satisfactory, hold the disk so that it does not turn, and turn the height adjusting screw at the top of the disk to adjust the height. (Refer to Fig. 2-11-3.)
- A) Turn the screw clockwise if the measured height is low.
- B) Turn the screw counterclockwise if the measured height is high.
- M. On completion of adjustment, lock the height adjusting screw by heating it with the tip of a hot iron.
- N. Install the cassette housing as in Para. 2-1-2.
- O. Adjust back tension and tension pole position as outlined in Para. 3-1.

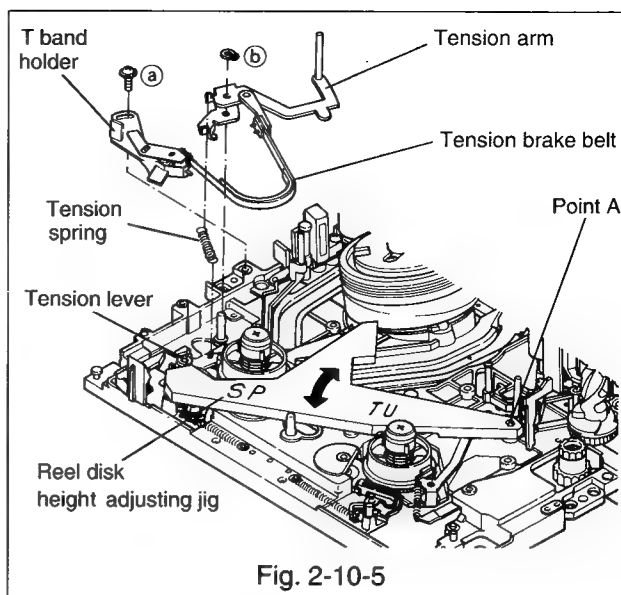


Fig. 2-10-5

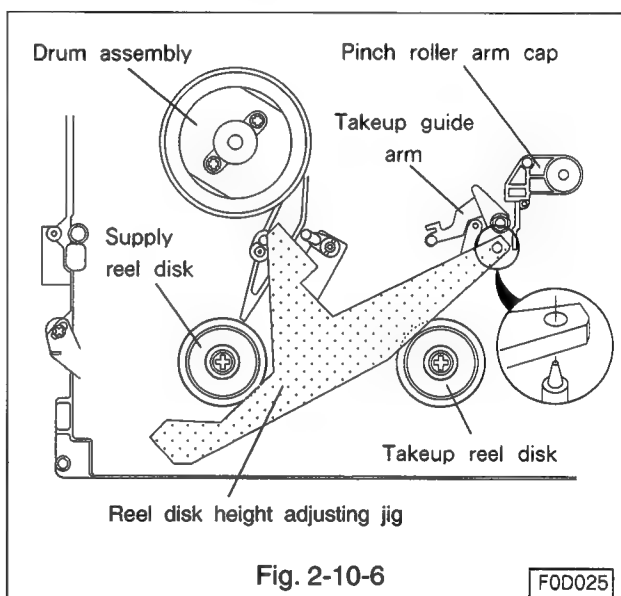


Fig. 2-10-6

F0D025

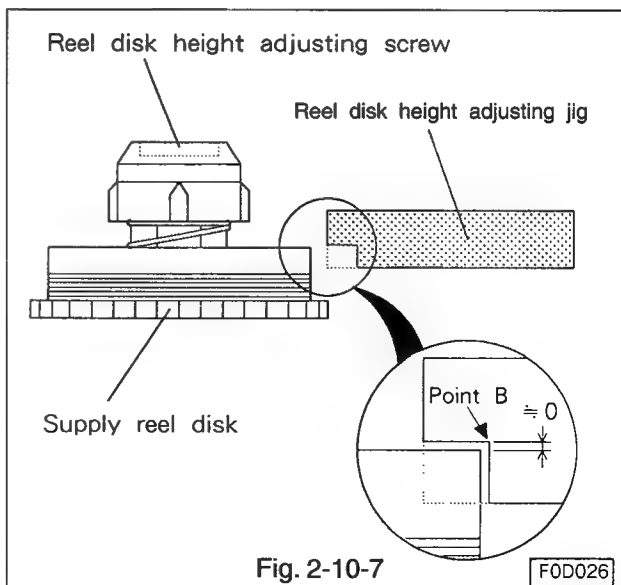


Fig. 2-10-7

F0D026

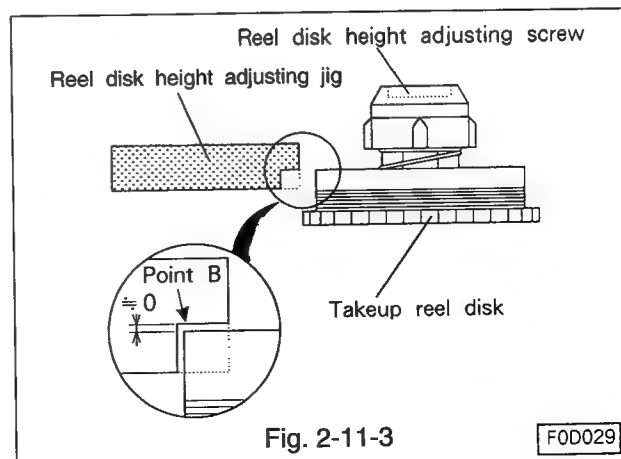
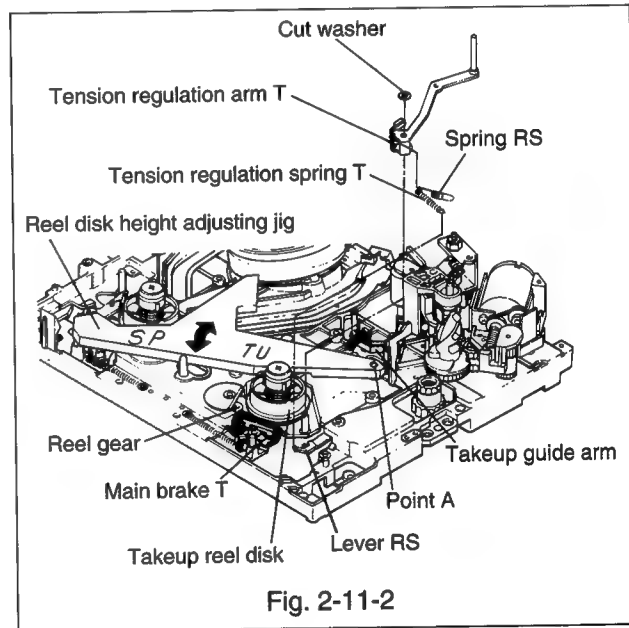
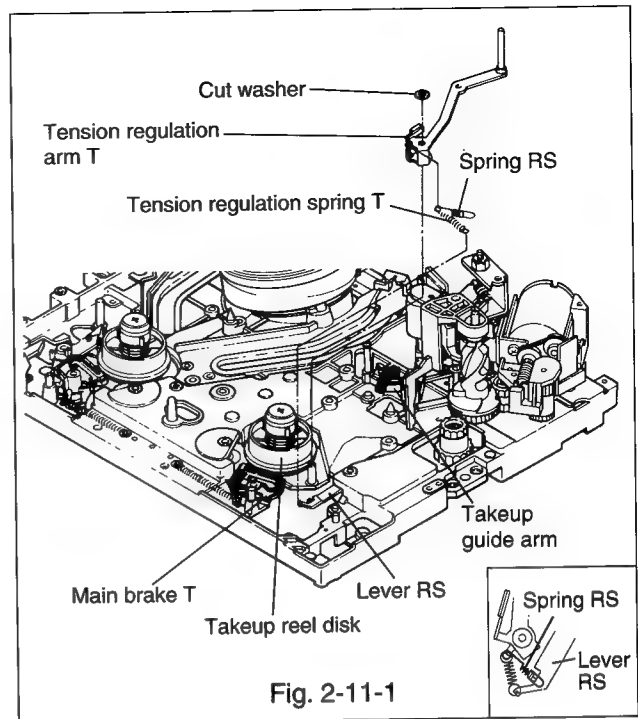
2-11 Takeup Reel Disk

2-11-1 Removal(Refer to Fig. 2-11-1.)

- A. Remove the cassette housing as in Para. 2-1-1.
- B. Detach the spring RS and the tension regulation spring T from the tension regulation arm T and the lever RS.
- C. Remove the cut washer which fastens the tension regulation arm T.
- D. Turn the takeup guide arm slightly clockwise and raise the tension regulation arm T to remove it from the shaft.
- E. Turn the main brake slightly counter-clockwise to separate the brake from the takeup reel disk and raise the disk upwards to remove it from the shaft.

2-11-2 Installation(Refer to Fig. 2-11-2, 2-11-3.)

- A. Turn the main brake T slightly counter-clockwise to release the takeup reel disk shaft. Slip the takeup reel disk onto the shaft so that the gear of the takeup reel shall mesh with the reel gear.(Refer to Fig. 2-11-2.)
- B. Turn the takeup guide arm slightly clockwise and install the tension regulation arm T to the shaft. Secure the arm with a cut washer.
- C. Fasten the tension regulation spring T and the spring RS to the tension regulation arm T and the lever RS.
- D. Separate the main brake T and the tension regulation arm T from the takeup reel disk and make certain that the takeup reel disk turns freely.
- E. Place the reel disk height adjusting jig(Part Number 859C342O20) in the reference position on the main plate. (Refer to Fig. 2-10-6.)
- F. Turn the jig slowly about the point A towards the takeup reel disk to make certain that the height of the disk flange agrees with the point B on the takeup side of the jig(marked TU). (Refer to Fig. 2-11-3.)
- G. If the height of the disk is not satisfactory, hold the disk so that it shall not turn, and turn the height adjusting screw at the top of the disk to adjust the height. (Refer to Fig. 2-11-3.)
 - A) Turn the screw clockwise if the measured height is low.
 - B) Turn the screw counterclockwise if the measured height is high.
- H. On completion of height adjustment, lock the adjusting screw by heating it with the tip of a hot iron.
- I. Install the cassette housing as in Para. 2-1-2.



F0D029

2-12 A/C Head

2-12-1 Removal (Refer to Fig. 2-12-1, 2-12-2.)

- Disconnect the connector from the PCB-A/C HEAD.(Refer to Fig. 2-12-1.)
- Remove the nut which fastens the A/C head assembly.
- Raise upwards and remove the A/C head assembly from the shaft by paying attention to the A/C arm spring which turns the A/C head assembly clockwise.
- Remove three A/C head fastening screws(㉑ ~ ㉓) and the A/C spring shown in Fig. 2-12-2, and remove the A/C head from the A/C arm.
- Unsolder the PCB-A/C HEAD from the A/C head.(Refer to Fig. 2-12-2.)

2-12-2 Installation(Refer to Fig. 2-12-1~2-12-3.)

- Solder the PCB A/C HEAD to the A/C head.
(Refer to Fig. 2-12-2.)
- Fasten the A/C head to the A/C arm with three screws(㉑ ~ ㉓) and the A/C spring.
Note:
Install the A/C head to the A/C arm so that the base surface of the A/C head shall be parallel to the A/C arm, and their spacing and the A/C head installation screw ㉑ height shall be as specified in Fig. 2-12-3.
- Assemble the A/C head assembly to the shaft while turning the A/C arm spring counter-clockwise about 60°
(Refer to Fig. 2-12-1.)
- Tighten the A/C head assembly fastening nut so that the base surface of the A/C head shall be about 7mm above the main plate surface.(Refer to Fig. 2-12-3.)
- Plug in the connector to the PCB-A/C HEAD.
(Refer to Fig. 2-12-1.)
- Conduct the A/C head adjustment and the phase adjustment as outlined in Para. 3-3 and 3-4.

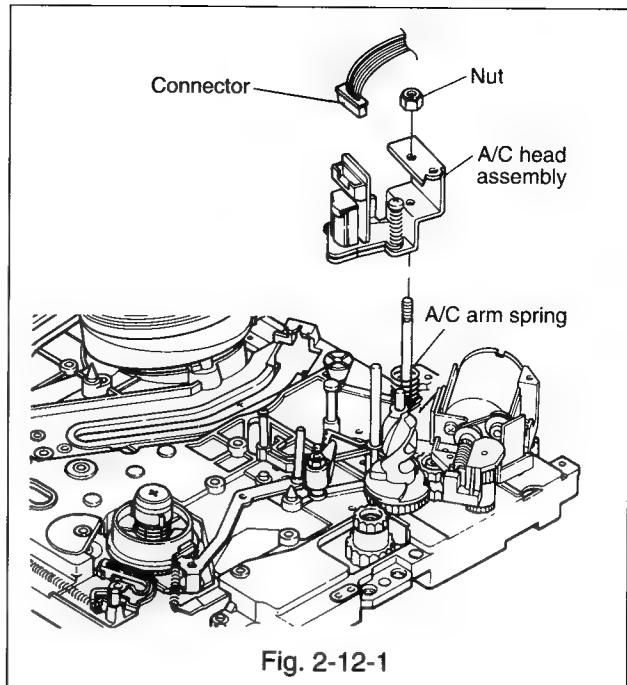


Fig. 2-12-1

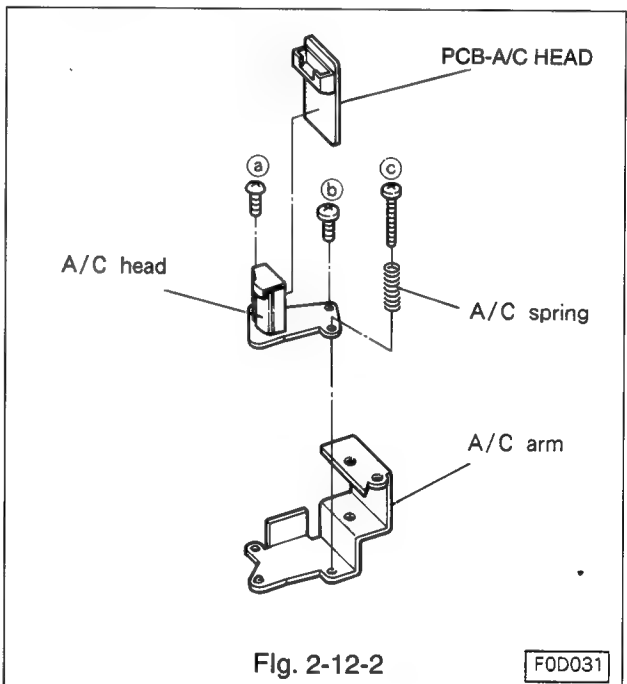


Fig. 2-12-2

F0D031

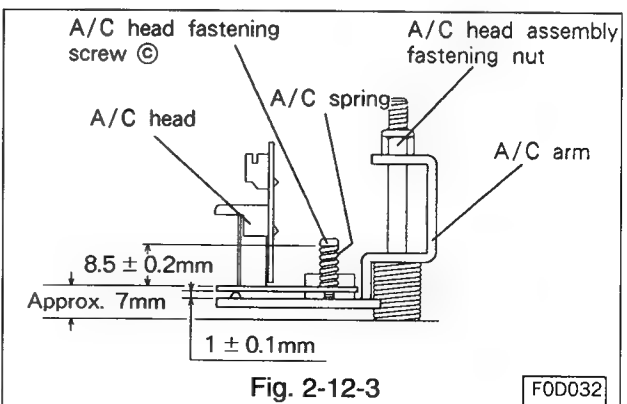


Fig. 2-12-3

F0D032

2-13 Take Up Guide Arm

2-13-1 Removal(Refer to Fig. 2-13-1.)

- Set the VCR in the eject mode.
- Remove the pinch roller arm assembly.
(Refer to Para. 2-8 "Pinch Roller")
- Raise and separate the pinch roller cam and the TU-G gear arm from the shaft at the same time.
- Remove the takeup guide arm fastening nut. Raise and separate the takeup guide arm from the shaft with care not to lose the TU-G spring.

2-13-2 Installation(Refer to Fig. 2-13-1~2-13-3.)

- Install the TU-G spring and the takeup guide arm so that one end of the TU-G spring is fastened to the takeup guide arm and the other end is fastened to the hook of the main plate. Secure them with the fastening nut temporarily.
- Place the reel disk height adjusting jig(for the F deck) in the reference position on the main plate(Refer to Fig. 2-10-6). Insure the takeup guide arm is level with point B of the height adjusting jig(for the E deck). (Refer to Fig. 2-13-2.)
to Fig. 2-13-2.)
- Turn the takeup tension lever fully clockwise as shown in Fig. 2-13-1.
- Line the matching mark on the TU-G gear arm and beginning of gear section on the takeup guide arm, and line the matching mark on the pinch roller cam and center of gear on the joint gear as shown in Fig. 2-13-3, and install the pinch roller cam and the TU-G gear to the shaft at the same time.
- Assemble the pinch roller arm assembly to the shaft on the main plate.(Refer to Fig. 2-13-1.)
- Secure the pinch roller arm assembly with the pinch roller arm cap and the grip ring.

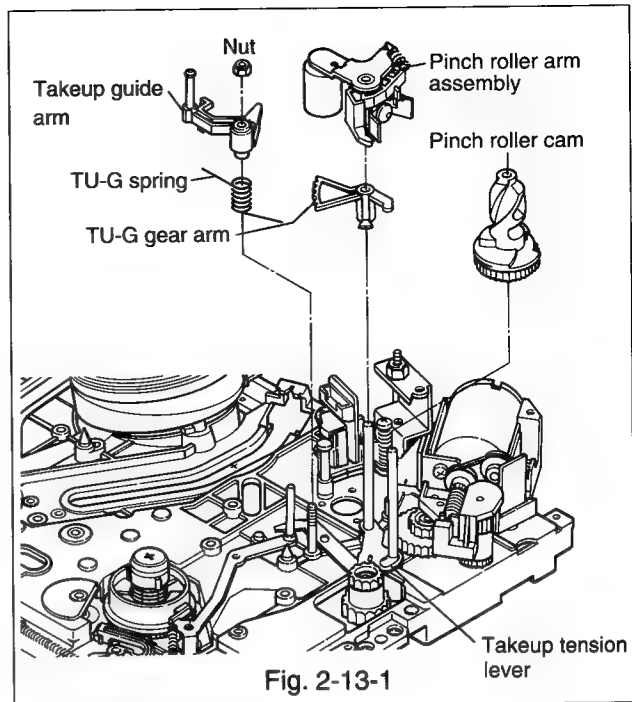


Fig. 2-13-1

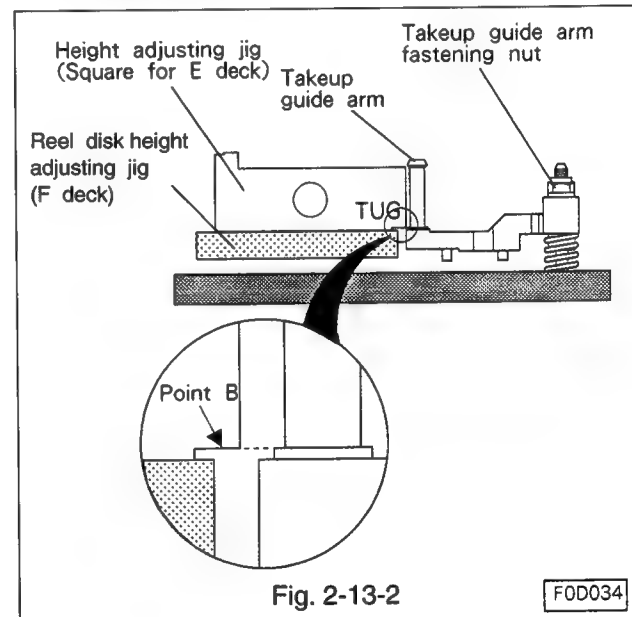


Fig. 2-13-2

F0D034

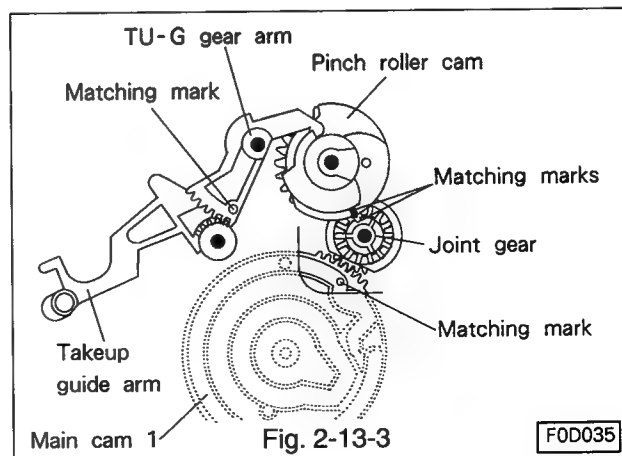


Fig. 2-13-3

F0D035

2-14 PCB-Deck(Printed Circuit Board)

2-14-1 Removal(Refer to Fig. 2-14-1, 2-14-2.)

- Detach the capstan brake spring from the capstan brake and the loading gear arm.(Refer to Fig. 2-14-1.)
- Remove the reel belt from the bottom of the deck.(Refer to Fig. 2-5.)
- Detach two grip rings (f) shown in Fig. 2-14-2 and remove the loading gear arm.
- Unsolder the terminals of the FE head.(Refer to Fig. 2-14-1.)
- Unfasten the catches and remove the F/L gear 2, 3 and 4.(Refer to Fig. 2-14-2.)
- Remove grip ring (g) and cut washer (h), and unfasten three catches shown in Fig. 2-14-3 to remove the cam plate B.(Refer to Fig. 2-14-2.)
- Unscrew five fastening screws (a ~ e) and remove the PCB-DECK.(Refer to Fig. 2-14-2.)

2-14-2 Installation(Refer to Fig. 2-14-1~2-14-3.)

- Make certain that the mode switch is set to the eject position.(Refer to section 2-9.) Fasten the PCB DECK with five screws and solder the FE head terminals.(Refer to Fig. 2-14-1.)

Note:

The safety lever is normally held leftward with a spring. Pull the safety lever forwards and install the PCB DECK.

- Install the cam plate B by paying attention to the pin (a ~ g) positions shown in Fig. 2-14-3, and secure the plate with three catches, grip ring (g) and cut washer (h).
- Line the matching mark on the loading arm T and that on the loading gear arm as shown in Fig. 2-14-3, and assemble the loading gear arm so that the pin of the loading gear arm shall enter the groove of the main cam 2. Secure the loading gear arm with two grip rings (f).
- Assemble the F/L gear 2, 3, and 4 to the shafts.(Refer to Fig. 2-14-2.)
- Install the reel belt.(Refer to Fig. 2-5.)
- Fasten the capstan brake spring to the capstan brake and the loading gear arm from the top side of the deck.(Refer to Fig. 2-14-1.)

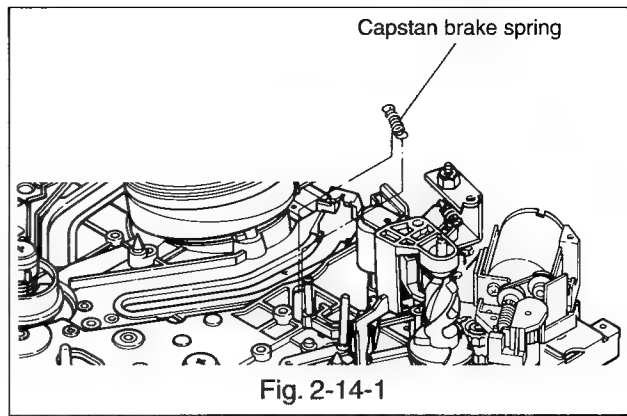


Fig. 2-14-1

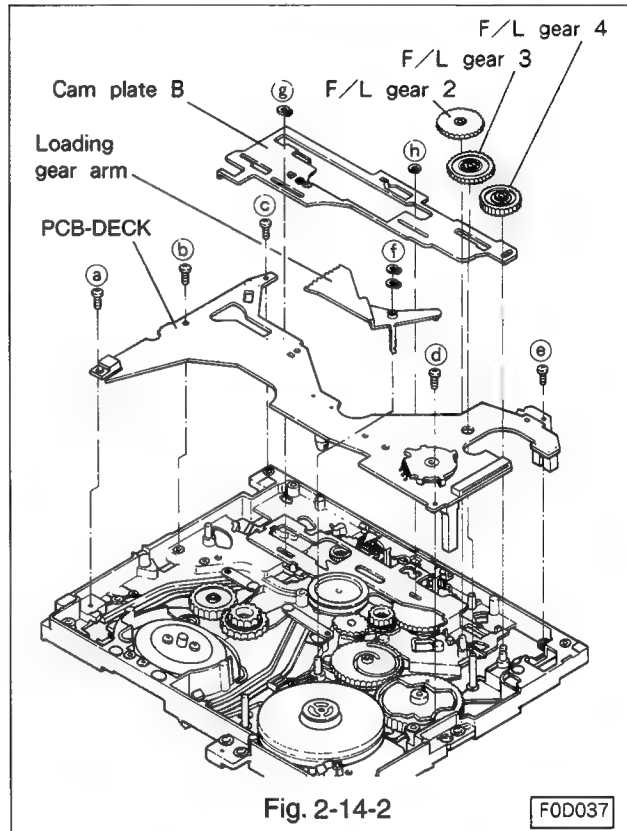


Fig. 2-14-2

F0D037

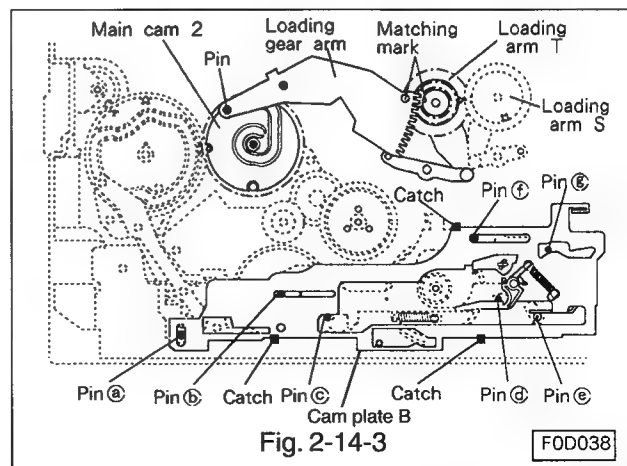


Fig. 2-14-3

F0D038

2-15 Positioning and Installation Sequence of Parts Around Main Cam 1 (Bottom Side of Deck) (Refer to Fig. 2-15-1~2-15-6.)

Note:

Set the VCR to the eject mode to install the main cam 1 and its peripheral parts.

- A. Line the positioning hole in lever RS to that of the main plate, and assemble lever RS to the shaft. (Refer to Fig. 2-15-1.)
- B. Line the positioning hole in lever C with that of the main plate, and assemble lever C to the shaft.
- C. Take care not to move the lever RS and lever C, assemble the main cam 1 to the shaft by lining the matching mark of the joint gear with the positioning hole of main plate. Secure the main cam 1 with the grip ring. (Refer to Fig. 2-15-2.)

Note:

The pins of the lever RS and the lever C enter the groove of the main cam 1 when the levers are lined with the positioning holes.

Make certain that the pins of the levers enter the groove of the main cam 1.

- D. Assemble the thrust washer to the pin (c) shown in Fig. 2-15-2, and install the cam plate C so that the corresponding positions of the plate match the pins (a ~ g).
- E. Fasten cam spring C to cam plate C and the cam plate holder. (Refer to Fig. 2-15-2.)
- F. Assemble lever B to the shaft so that the pin of the lever shown in Fig. 2-15-3 enters the groove of the main cam 1. Secure the lever with a grip ring.
- G. Line the positioning hole of the F/L idler lever with that of the main plate. (Refer to Fig. 2-15-3.)

Note:

The pin of the F/L idler lever enters the groove of the main cam 2 when the positioning hole of the F/L idler lever is aligned.

Make certain that the pin of the lever enters the groove of the main cam 2.

- H. Line the matching mark of main cam 2 with that of main cam 1, and also the positioning hole of main cam 2, and assemble the main cam 2 to the shaft. (Refer to Fig. 2-15-3.)

Note:

Make certain that the pin of the F/L idler lever correctly enters in the groove of the main cam 2.

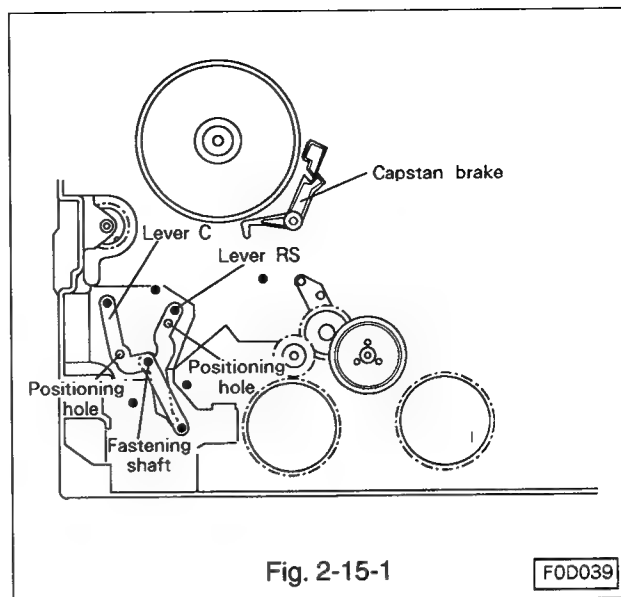


Fig. 2-15-1

F0D039

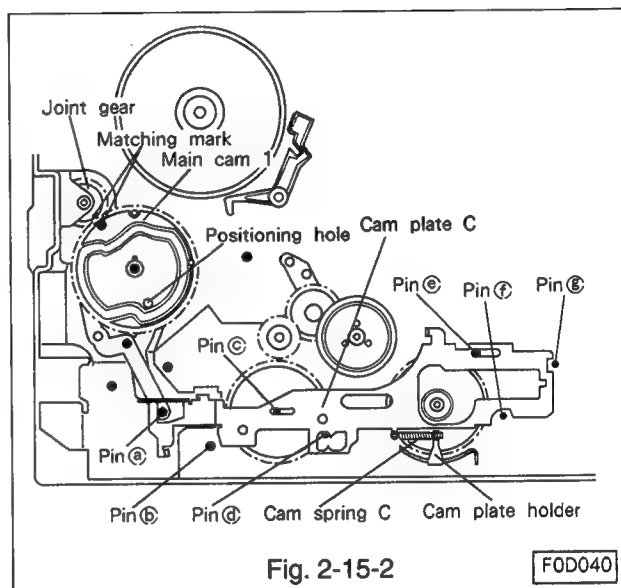


Fig. 2-15-2

F0D040

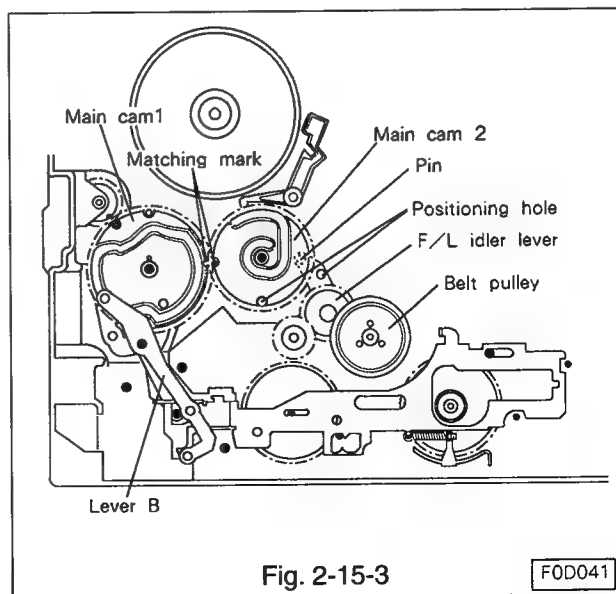


Fig. 2-15-3

F0D041

- I. Make certain that the mode switch is in the eject position. Fasten the PCB-DECK assembly with five screws and solder the FE head terminals. (Refer to Fig. 2-14-2 and 2-14-1.)

Note:

The safety lever is normally held in the leftward position by the spring. Pull the lever forwards and install the PCB DECK assembly.

- J. Install the cam plate B so that the plate matches pins (a ~ g) as shown in Fig. 2-15-4, especially pin (e), and secure the plate with three clamps, cut washer (pin (b)) and grip ring (pin (f)).
- K. Line the matching mark of the loading arm T with that of the loading gear arm as shown in Fig. 2-15-4, and assemble the loading gear arm to the shaft so that the pin of the loading gear arm enters the groove of the main cam 2. Secure arm with two grip rings (f). (Refer to Fig. 2-15-5.)
- L. Assemble the F/L gear 2, 3, and 4 to the shafts as shown in Fig. 2-15-5.
- M. Install the reel belt. (Refer to Fig. 2-5.)
- N. Fasten the tension regulation spring T and the spring RS to the tension regulation arm T and the lever RS from the top side of the deck. (Refer to Fig. 2-11-1.)
- O. Fasten the capstan brake spring to the capstan brake and the loading gear arm from the top side of the deck. (Refer to Fig. 2-15-6.)

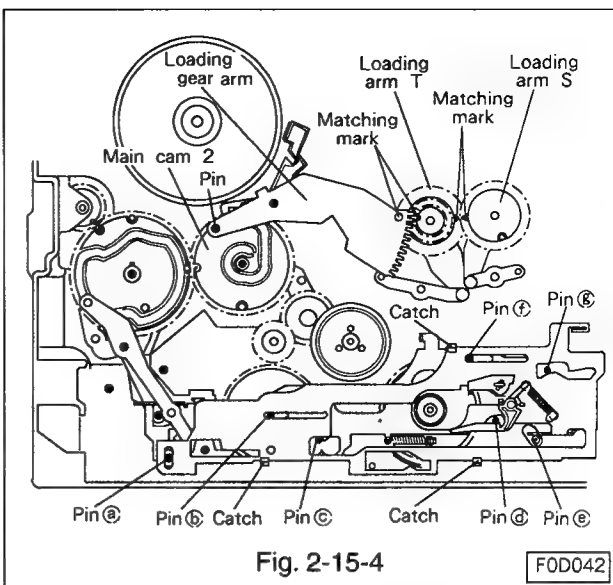


Fig. 2-15-4

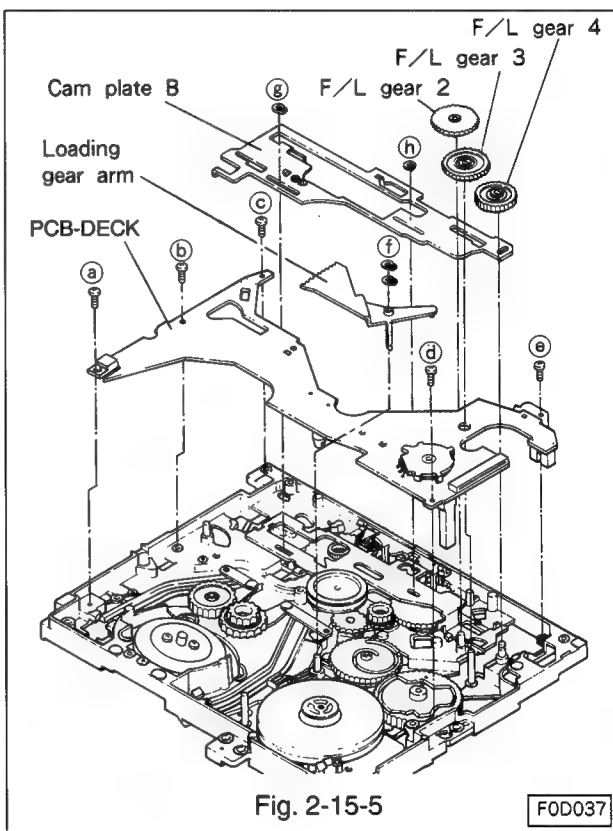


Fig. 2-15-5

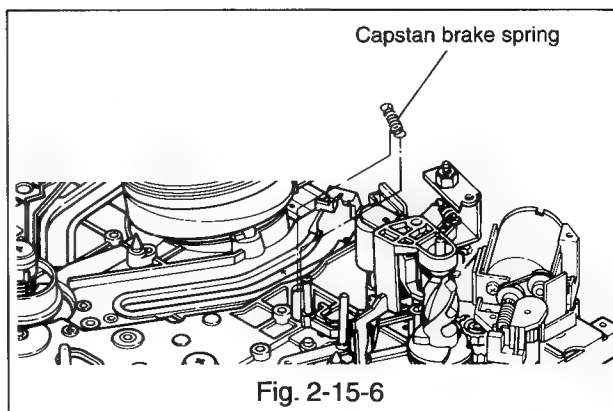


Fig. 2-15-6

2-16 Supply and Takeup Guide Rollers

2-16-1 Removal(Refer to Fig. 2-16.)

- A. Remove the cassette housing as in Para. 2-1-1.
- B. Loosen the set screw so the guide roller turns freely.
- C. Loosen the guide roller height adjusting screw located at the top of the guide roller by turning counterclockwise with the height adjusting screwdriver. Raise and remove the roller from the tape guide.

2-16-2 Installation(Refer to Fig. 2-16.)

- A. Make certain that the fastening thread section of a new guide roller is provided with a rubber ring.
- B. Set the new guide roller in the tape guide fastening hole.
- C. Turn the guide roller slowly clockwise till it becomes heavy.
- D. Turn further about 1/6 turn from the point where the guide roller becomes heavy, and return the roller about one turn counter-clockwise.
- E. Again turn the guide roller slowly clockwise till it becomes heavy. Turn the roller further about 1/6 turn from the point where the roller becomes heavy.
- F. Secure the guide roller lightly with the set screw. Check and adjust the envelope as in Para. 3-2.

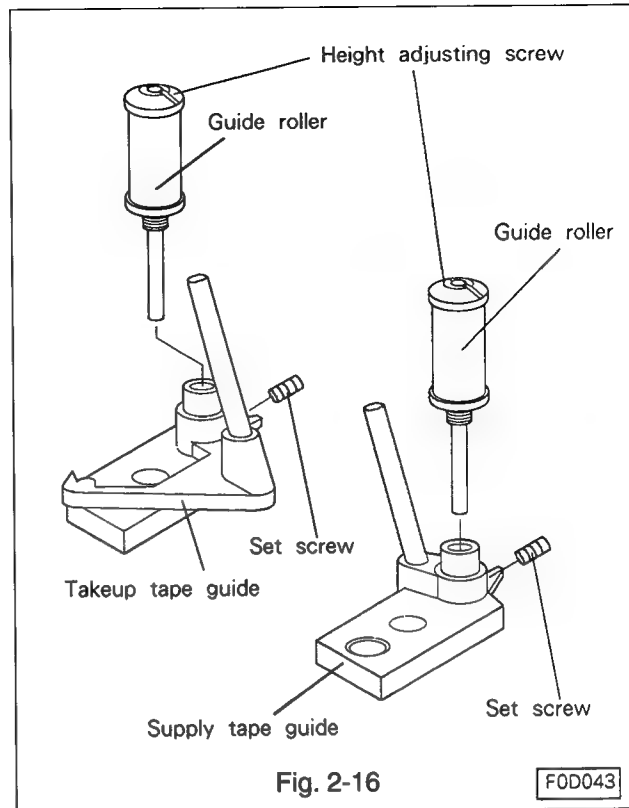


Fig. 2-16

F0D043

2-17 Supply and Takeup Tape Guide Assemblies

Note:

Refer to section 3-2-7 and 3-3-3 before replacing the supply or takeup tape guide assemblies.

2-17-1 Removal(Refer to Fig. 2-17-1~2-17-4.)

- A. Remove the cassette housing as in Para. 2-1-1.
- B. Detach the capstan brake spring from the capstan brake and the loading gear arm.(Refer to Fig. 2-15-6.)
- C. Remove the reel belt. (Refer to Fig. 2-5.)
- D. Secure the tension arm and the tension regulation arm S with a rubber band etc. so as to separate them from the supply guide roller.(Refer to Fig. 2-17-1.)

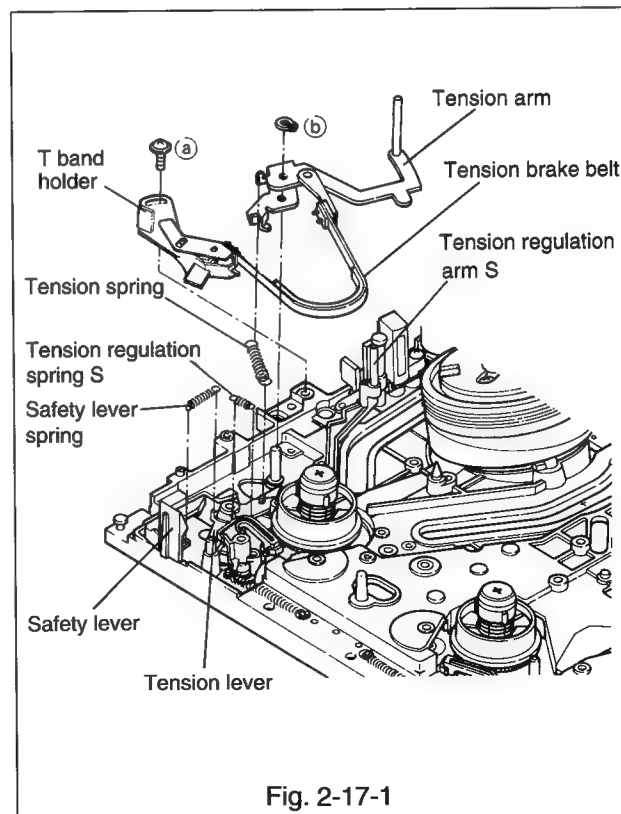


Fig. 2-17-1

- E. Remove the grip ring and remove the loading gear arm.(Refer to Fig. 2-17-2.)
- F. Turn the loading arm S and T to the loading position.(Refer to Fig. 2-17-2.)
- G. Unfasten the clamp shown in Fig. 2-17-3, and remove loading arm S.
- H. Remove the loading arm T is being replaced the takeup guide assembly.
- I. Unfasten the clamp of the slider which secures the supply or takeup tape guide assembly, and remove the tape guide assembly and the slider from the main plate.(Refer to Fig. 2-17-4.)

2-17-2 Installation(Refer to Fig. 2-17-1~2-17-4.)

- A. Place a new tape guide assembly on the installation rail of the main plate and install the slider on the reverse side of the main plate so that the catch of the slider enters the fastening hole of the tape guide assembly.
- B. If the takeup tape guide is replaced, install the loading arm T first.(Refer to Fig. 2-17-2.)
- C. Install the loading arm T so that the matching mark of the loading arm S is lined with the matching mark of the loading arm T as illustrated in Fig. 2-17-2.
- D. Line the matching mark of the loading gear arm with that of the loading arm T, and assemble the loading gear arm to the shaft so that the pin of the loading gear arm enters the groove of the main cam 2. Secure the loading gear arm with two grip rings.
- E. Install the reel belt.(Refer to Fig. 2-5.)
- F. Fasten the capstan brake spring to the capstan brake and the loading gear arm from the top side of the deck.(Refer to Fig. 2-17-1.)
- G. Install the cassette housing as in Para. 2-1-2.

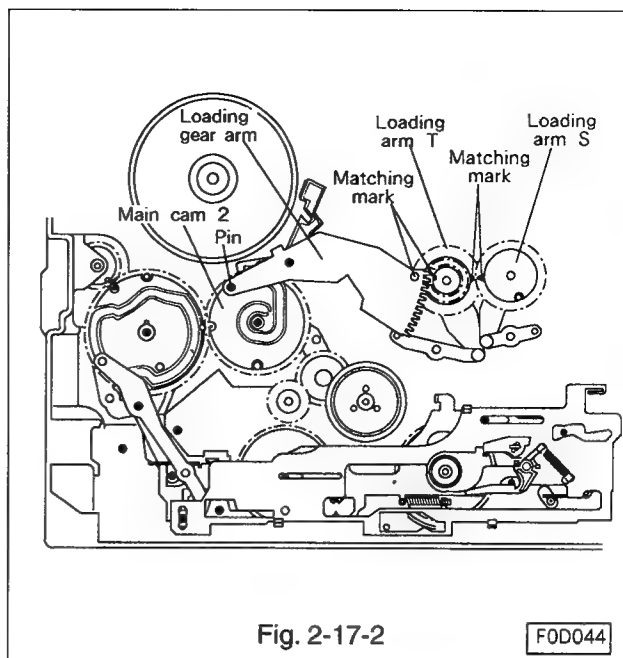


Fig. 2-17-2

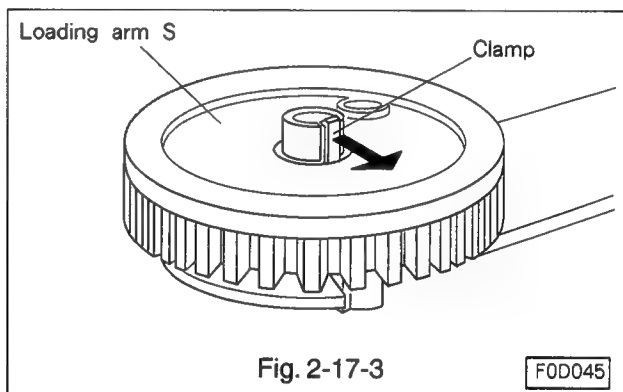


Fig. 2-17-3

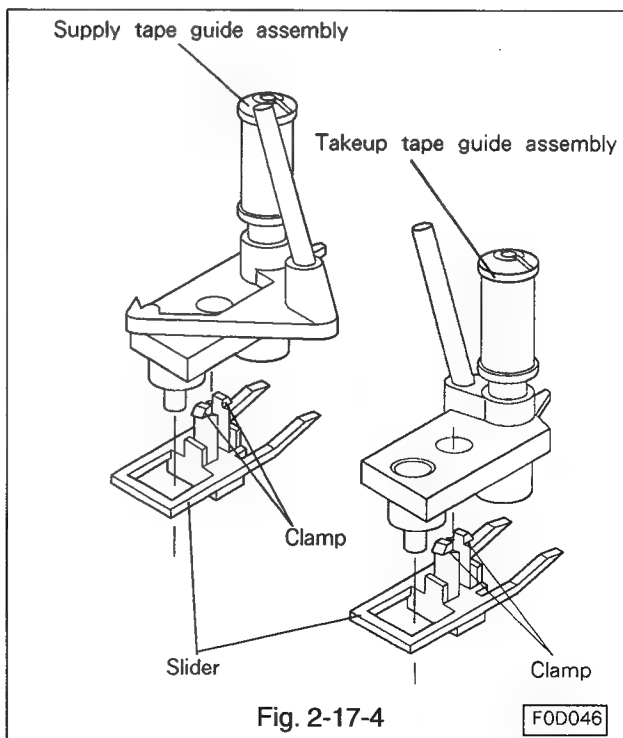


Fig. 2-17-4

3. Interchangeability Adjustment of Mechanism

Note:

Tracking may need to be preset in the inter-changeability adjustment of the mechanism.

Digital tracking should be preset. To preset, short circuit TP5A and TP5B on the PCB-SIGNAL.

Note:

The adjustment is conducted in the playback mode, using the stair step signal of the alignment tape, connect an oscilloscope to TP2A and external Trig. to TP2H, unless other-wise specified.

3-1 Adjustment of Back Tension and Tension Pole Position(Refer to Fig. 3-1.)

Run a blank tape for several minutes to break in the reel disks and the transport before beginning the adjustment.

- A. Set the back tension measuring jig and set the VCR to the playback mode.
- B. When the running of the tape becomes steady, make certain that the tension arm check hole is within the M/P hole of the main plate ($0 \pm 0.5\text{mm}$) or the interval between the center of tension pole and the center of Supply guide pole is $2.0 \pm 0.5\text{mm}$.
- C. If neither the center of Tension pole nor the tension arm check hole is in position, loosen the T band holder fastening screw lightly and move the T band holder so that the condition specified by the para.B is satisfied.
- D. On completion of adjustment, tighten the T band fastening screw.
- E. Make certain that the reading of the back tension measuring jig is $50 \pm 6\text{g-cm}$.
- F. When the running of the tape is steady, check visually to make certain that the deflection of the Tension pole is 1mm or less.

Note:

Slight fluctuation of back tension may be tolerated, however if fluctuation exceeds 5g-cm, the reel disk etc. may be defective. Examine and correct the defect.

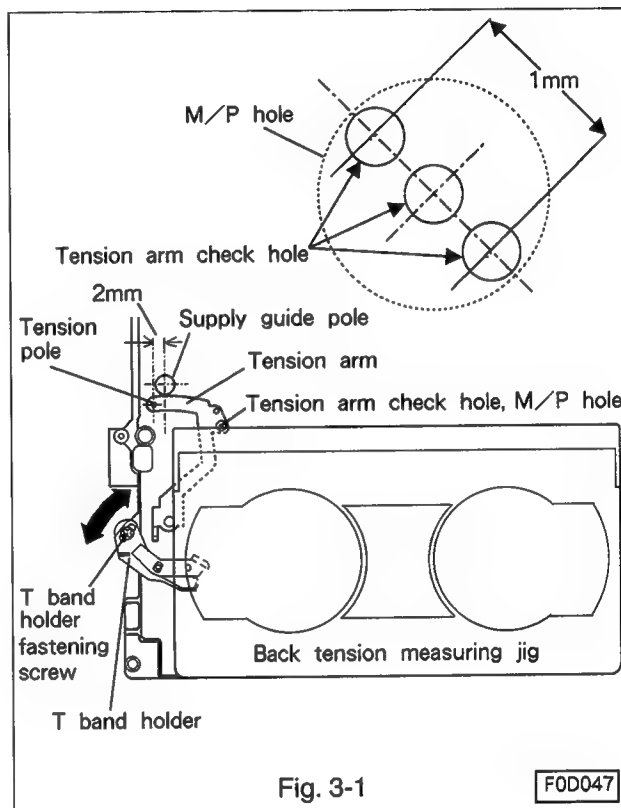


Fig. 3-1

F0D047

3-2 Check and Adjustment of FM Envelope

3-2-1 Guide Roller Adjustment(Refer to Fig. 3-2-1.)

- A. Set the VCR to the playback mode.
- B. Preset tracking.
- C. Check if the FM waveform is flat like A shown in Fig. 3-2-1.
- D. Adjust the height of the supply guide roller as in 3-2-2 if the leading portion (the entry side of the drum) of the FM waveform is not flat like B or C.
- Adjust the height of the takeup guide roller as in 3-2-3 if the trailing portion (the exit side of the drum) is not flat like D or E.

3-2-2 Adjustment of Supply Guide Roller Height (Refer to Fig. 3-2-1, 3-2-2.)

- A. Loosen the set screw to such a degree so the supply guide roller turns lightly.(Refer to Fig. 3-2-2.)
- B. The supply guide roller is low if the leading portion(the entry side of the drum) of the FM waveform is like B, and high if like C. Adjust the height of the roller by turning the adjusting screw at the top of the roller so that the FM waveform shall be flat like A.
 - Turn the adjusting screw counterclockwise if the roller is low.
 - Turn the adjusting screw clockwise if the roller is high.
- C. Carry out the coarse adjustment of phase as in 3-2-4.

3-2-3 Adjustment of Takeup Guide Roller Height (Refer to Fig. 3-2-1, 3-2-2.)

- A. Loosen the set screw to such a degree as the takeup guide roller turns lightly.(Refer to Fig. 3-2-2.)
- B. The takeup guide roller is low if the trailing portion(the exit side of the drum) of the FM waveform is like D, and high if like E. Adjust the height of the roller by turning the adjusting screw at the top of the roller so that the FM waveform shall be flat like A.
 - Turn the adjusting screw counterclockwise if the roller is low.
 - Turn the adjusting screw clockwise if the roller is high.
- C. On completion of height adjustment, adjust the azimuth and height of the A/C head as in 3-3-2.
- D. Coarsely adjust the phase as in 3-2-4.

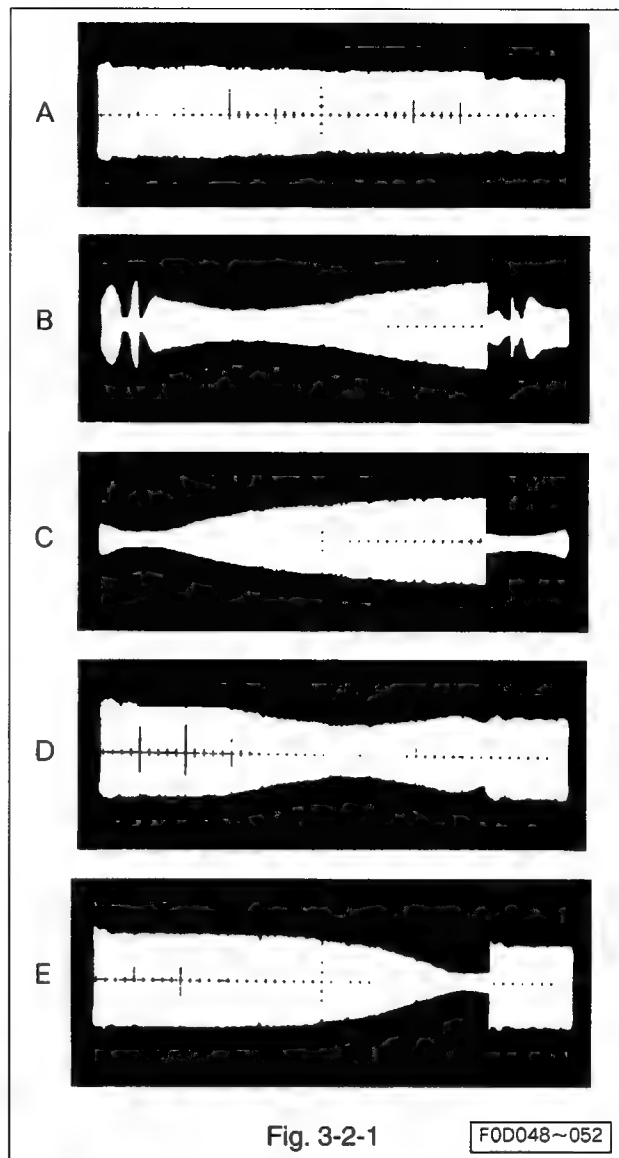


Fig. 3-2-1

F0D048~052

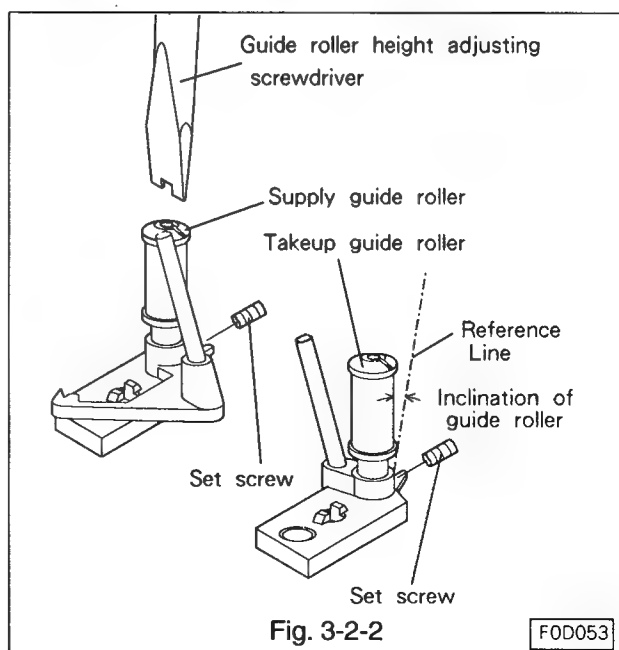


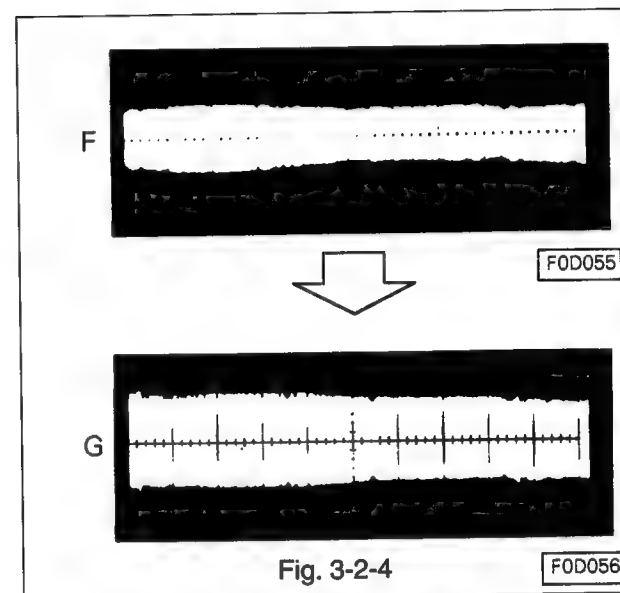
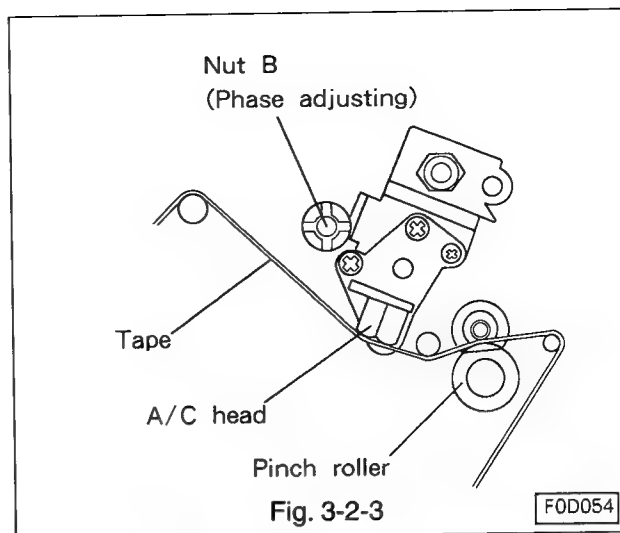
Fig. 3-2-2

F0D053

3-2-4 Coarse Phase Adjustment

(Refer to Fig. 3-2-3, 3-2-4.)

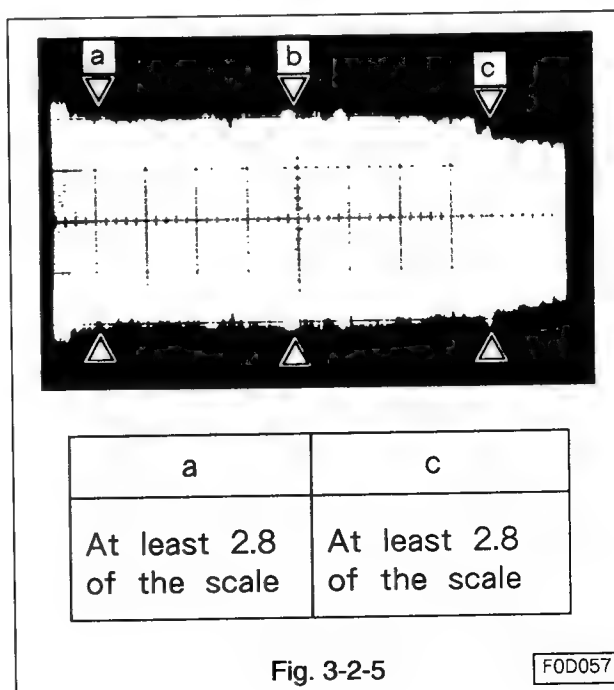
- Set the VCR to the playback mode.
- Preset tracking.
- Check the FM waveform after checking and adjusting the guide rollers.
- If the amplitude of the FM waveform is narrow like F because of out of phase, adjust the phase adjusting nut so that the amplitude of the FM waveform is maximum.



3-2-5 Check of FM Waveform Flatness

(Refer to Fig. 3-2-5.)

- Set the VCR to the playback mode.
- Set the tracking switch to the manual mode. Vary tracking and check if the amplitude changes and the waveform remains flat.
- Adjust tracking in the manual mode so that the amplitude is maximum, and adjust the oscilloscope so that the amplitude is '5' on the scale of the oscilloscope.
- Adjust tracking so that the amplitude at the middle (around the point 'b') of the FM wave form is about 80% ('4' on the scale of the scope) of the maximum amplitude. Make certain that the amplitudes at points 'a' and 'c' satisfy the requirements given in Fig. 3-2-5.
- If deviating from the requirements, conduct the check and adjustment of the FM envelope beginning with 3-2.



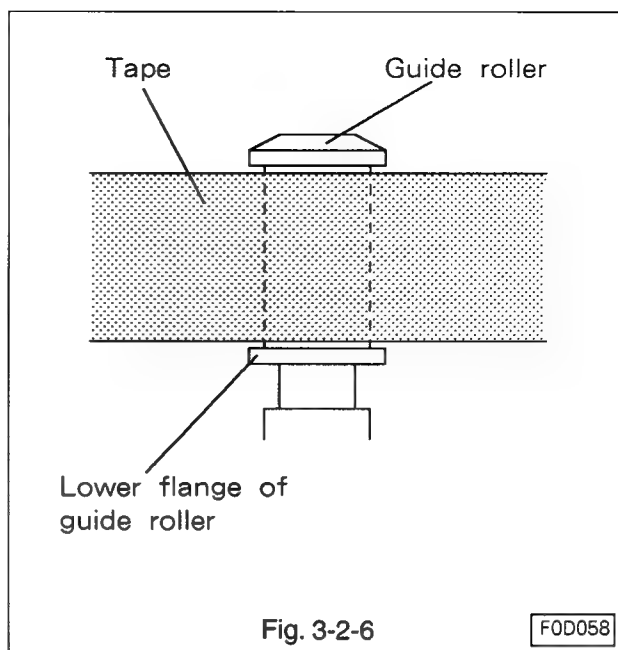
3-2-6 Check 1: Tape Running Condition on Guide Rollers(Refer to Fig. 3-2-6.)

- Set the VCR to the playback mode.
- Visually check if there is a space between the tape and the lower flange of the supply and the take up guide rollers.
- If not, replace the tape guide as in 3-2-7.

Note:

In this case the tape guide should be replaced with the tape guide which has a larger inclination.

- If the supply tape guide is replaced, check the guide roller as in 3-2-1.
If the take up tape guide is replaced, check the guide roller as in 3-2-3, and the waveform flatness as in 3-2-5
- Load and unload the tape several times to make certain that the flatness of the FM waveform does not change.
- If changes occur, check the A/C arm shaft for looseness.
If not free, replace the A/C arm and adjust the audio/control head as in 3-3.

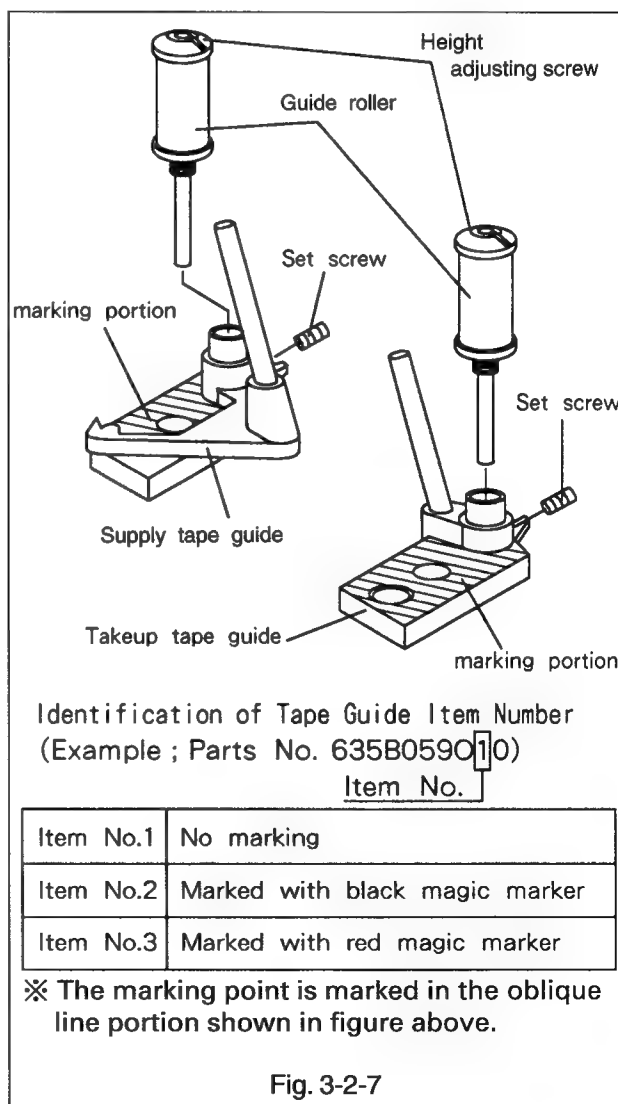


3-2-7 Replacement of Tape Guides

- Identify the Item Number of the tape guide to be replaced.
This is done by observing the marking present on the die-cast portion of the tape guide base, and comparing that marking to Fig. 3-2-7.
- If the Item Number of the tape guide presently installed is a '2', replace the guide with an Item Number '1' guide.(Part No.635B059O10)
- If the Item Number of the present tape guide is a '1', replace the guide with an Item Number '3' guide.
- If the Item Number of the present tape guide is a '3', replace the guide with other Item Number '3' guide.
- Once the tape guide is replaced, resume alignment starting with 3-2-1.

3-2-8 Check 2: Tape Running Condition on Guide Rollers

- Set the VCR to the playback mode.
- Press the head of the supply guide roller and the take up guide roller lightly, and release the roller. Check if the FM waveform is quickly restored to the previous level.
- If the FM waveform is not restored quickly, replace the tape guide as in 3-2-7.
- If the supply tape guide is replaced, check the guide roller as in 3-2-1.
If the takeup tape guide is replaced, check the guide roller as in 3-2-1, and check the FM waveform as flatness as in 3-2-5
- If satisfactory, tighten the set screw of the guide roller on the supply side and the take up side.



3-3 Adjustment of Audio/Control Head

3-3-1 Adjustment of A/C Head Slant

(Refer to Fig. 3-3-1.)

- Play back a blank tape.
- Turn the screw C slowly clockwise to crease the bottom edge of the tape slightly by the lower flange of the takeup guide pole.
- Turn the screw C slowly counterclockwise to eliminate the crease of the bottom edge of the tape.
- Turn the screw C slowly clockwise again and stop turning just before the tape is creased.

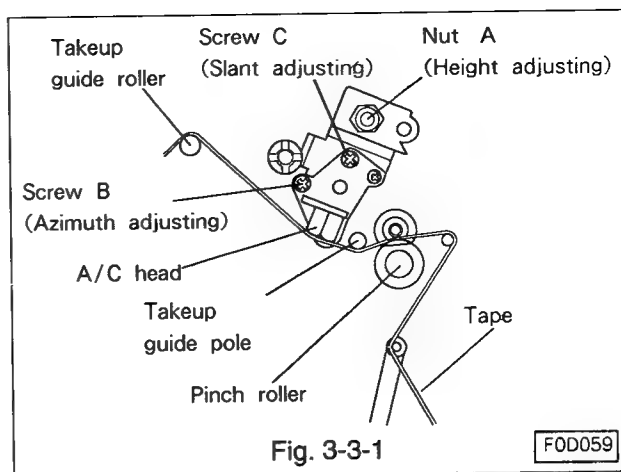


Fig. 3-3-1

F0D059

3-3-2 Adjustment of A/C Head Azimuth and Height(Refer to Fig. 3-3-1~3-3-3.)

- Using stair step signal of alignment tape, connect an oscilloscope to the audio output terminal and set the VCR to the playback mode.
- Turn the nut A(height adjusting)and the screw B(azimuth adjusting)so that the audio output level is maximum.
- Turn the A/C head counterclockwise and release it to make certain that the audio output level does not change.
- If the level changes, check if the A/C arm shaft is loose. If not free, replace the A/C arm and adjust the slant of the A/C head as in 3-3-1 and the azimuth and height of the A/C head from beginning.
- Apply a force lightly to the A/C head shaft in the direction of A and A' of the arrow shown in Fig. 3-3-3, to make certain that the audio output level remains at maximum level and does not change.
- If the level changes, turn the nut A(height adjusting)so that the audio output level is maximum. Apply a force lightly to the A/C head shaft in the direction of B and B' of the arrow shown in Fig. 3-3-3 and adjust so that the sound output level is maximum.
- Check the sound output level in the playback mode to make sure that the fluctuation of the level is less than 2dBp-p.
- If the fluctuation exceeds 2dBp-p, adjust the slant of the A/C head and the azimuth and height of the head.
- If this is still not satisfactory, replace the takeup tape guide as outlined in 3-3-3.

Note:

In this case the tape guide should be replaced with a guide which has less inclination.

- On completion of the above adjustment,adjust phase as in 3-4.

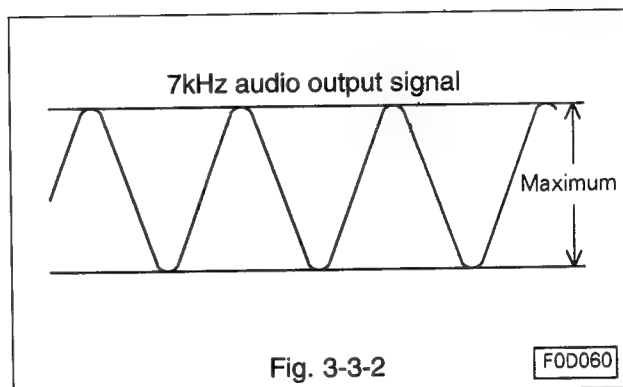


Fig. 3-3-2

F0D060

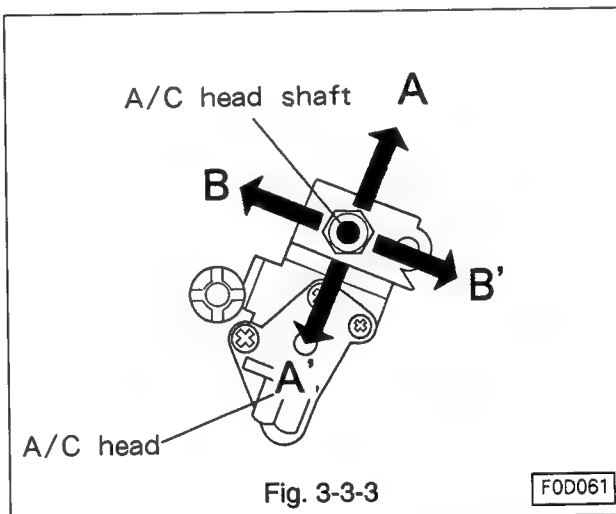


Fig. 3-3-3

F0D061

Identification of Tape Guide Item Number
(Example ; Parts No. 635B060010)

Item No.

Item No.1	No marking
Item No.2	Marked with black magic marker
Item No.3	Marked with red magic marker

※The marking points are marked in the tops of the Takeup and Supply tape guides.(Refer to Fig. 3 - 2 - 7)

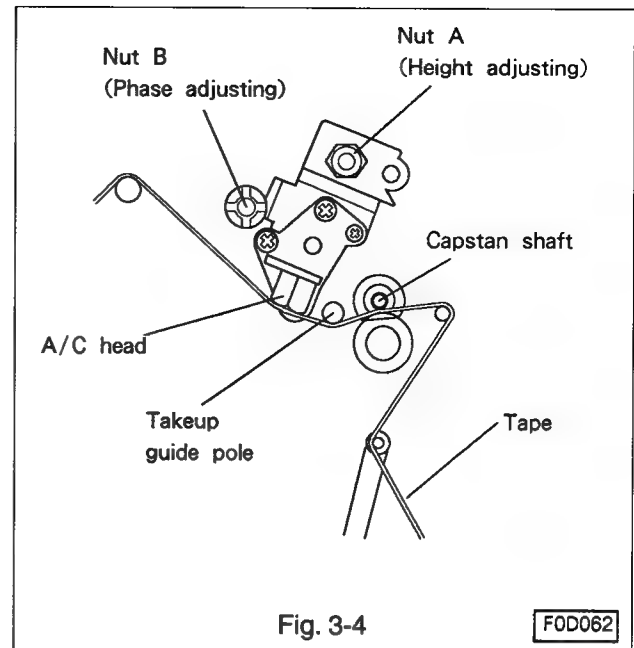
Fig.3-3-4

3-3-3 Replacement of Tape Guides

- A. Identify the Item Number of the Tape Guide to be replaced. This is done by observing the marking present on the die-cast portion of the Tape Guide base, and comparing that marking to Fig. 3-3-4.
- B. If the Item Number of the tape guide presently installed is a '3', replace the guide with an Item Number '1' guide.
- C. If the Item Number of the present tape guide is a '1', replace the guide with an Item Number '2' guide.
- D. If the Item Number of the present tape guide is a '2', replace the guide with other Item Number '2' guide.
- E. Once the tape guide is replaced, resume alignment starting with 3-2-1.

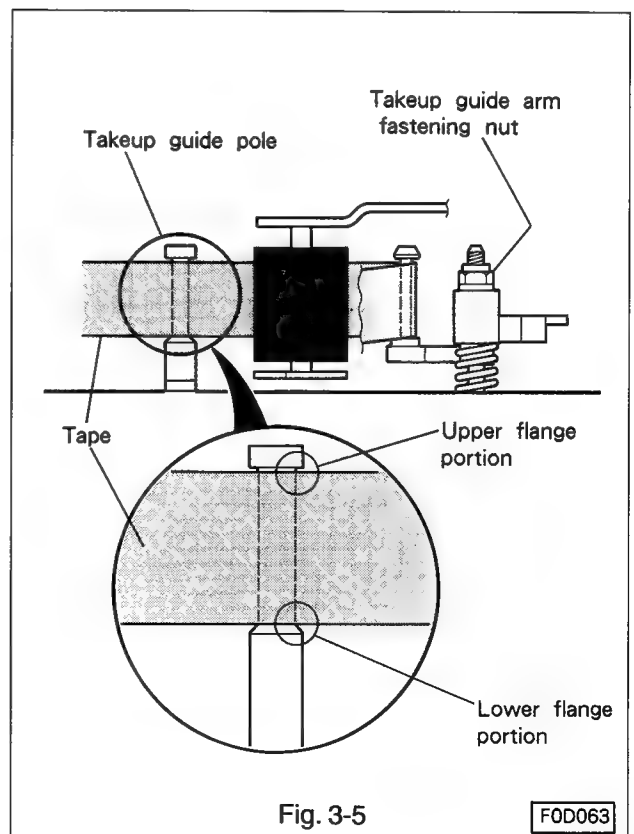
3-4 Phase Adjustment(Refer to Fig. 3-4.)

- A. Set the VCR to the playback mode.
- B. Preset tracking.
- C. Turn the phase adjusting nuts to make the amplitude of the FM waveform maximum.
Note:
Do not turn the phase adjusting nut more than one turn in either direction.
- D. Turn the A/C head counterclockwise and return to make sure that the amplitude of the FM waveform is the same as that before turning the head.
- E. If the amplitude changes, check the A/C arm shaft if loose. If not free, replace the A/C arm and adjust the A/C head as in 3-3 and the phase as in this section from beginning.
- F. Load and unload the tape several times to make certain that the amplitude of the FM waveform does not change.



3-5 Adjustment of Takeup Guide Arm Height (Refer to Fig. 3-5.)

- A. Run a final portion of T-160 blank tape in the reverse search mode.
- B. Adjust the height of the takeup guide pole by turning the height adjusting nut so that the tape shall not be creased at the upper and the lower flange portion of the take up guide pole.
Note:
Set the adjusting nut in the screwing-in direction.
Do not turn the nut more than one turn in either direction.
- C. Eject the cassette tape and set to the reverse search mode again to make certain that the tape is not creased at the upper and the lower flange portion of the takeup guide pole.
- D. Set to the playback mode and be sure that the tape is not creased at the upper and the lower flange portion of the takeup guide pole.



GLOSSARY OF ABBREVIATIONS

A/C	: Audio/Control	LIM	: Limiter
ACC	: Automatic Color Control	LPF	: Low-Pass Filter
A.E	: Audio Erase	LM	: Loading Motor
AFC	: Automatic Frequency Control		
AFT-D	: Automatic Fine Tuning Door Switch	MDA	: Motor Drive Amplifier
AGC	: Automatic Gain Control	MC	: Mechanical Control
AL	: After Load	MIC	: Microphone
AMP	: Amplifier	MOD	: Modulator
ANT	: Antenna		
A-PB	: Audio-Playback	N	: Not Normal
A-REC	: Audio-Recording		
ALC	: Automatic Level Control	OPE	: Operation
		OSC	: Oscillator
B-FS	: Brake Forward Search	O-PWV	: ON/OFF Command from Remote Decoder
B-RS	: Brake Reverse Search		
BPF	: Band-Pass Filter	PB	: Play Back
B/W	: Black and White	PG	: Pulse Generator
BS	: Band SW	P/R-SW	: P.B/REC-SW
		PCB	: Printed Circuit Board
CASS	: Cassette	PIC	: Picture Control
CP	: Capstan	P/R	: Play/Record
CP-FG	: Capstan-Frequency Generator	PSC	: Pulse swallow control
CP-F/R	: Capstan-Forward/Reverse	PWT-SET	: Power TV Set
CP-M	: Capstan-Motor	PWV	: ON/OFF Command to B+ Switching Circuit
CONV	: Converter		
CTL	: Control	REC	: Recording
C-LAMP	: Cassette Lamp	REF	: Reference
C-I LAMP	: Cassette Indicator Lamp	RIS	: Record Inhibit Switch
CE	: Chip Enable	REW	: Rewind
CE	: Not Chip Enable	REG	: Regulator
CK	: Clock	RS	: Reverse Search
CL	: Clear	REC-2	: Record Command for the Fine Editing Circuit
CNT	: Counter	R-FS	: Reel Drive Forward Search
CP R-R	: Capstan Reverse Rotation	R-P/R	: Reel Drive Play/Record
CS-1	: Cassette Switch 1		
CS-2	: Cassette Switch 2	S/AL	: Stop After Load
		SL	: Slow
DAL	: Delay-After Loading	SLOK	: Slow OK
DEMOD	: Demodulator	S/P	: Still/Pause
DET	: Detector	SS	: Start Sensor
DL	: Delay Line	SRV-REC	: Servo Record
DL-REV	: During Reverse	SS	: Not Speed Search
DL-FWD	: During Forward	S-STOP	: Stop Command
DOC	: Drop Out Compensator	STOK	: Still OK
DL-SL	: During Slow	STW	: Stop Watch
DL-SS	: During Not Speed Search	SENS	: Sensor
DOP	: Drop Out Pulse	STBY	: Stand By
EF	: Emitter Follower	TM	: Take up Motor
EMPHA	: Emphasis	T-REC	: Timer-Record
EQ	: Equalizer	T.P	: Test Point
EE	: Electronic-Electronic	TR	: Transistor
ES	: End Sensor	TU-P	: Tuner-Power
FE-H	: Full Erase Head	UL	: Unload
FF	: Fast Forward		
FG	: Frequency Generator	VS	: Voltage Synthesizer
FL-SW	: Front Loading SW	V.SYNC	: Vertical Sync
FLM	: Front Loading Motor	VCO	: Voltage Controlled Oscillator
F/R-SW	: FF/Rewind Switch	VXO	: Variable Crystal Oscillator
F/R	: Forward/Reverse		
FS	: Forward Search	W/D	: White/Dark
G	: Ground	X'OSC	: Crystal Oscillator
		Y/C	: Luminance/Chrominance
HE	: Hall Element		
H-LED	: Humidity-LED		
H-SENS	: Humidity-Sensor		
HPF	: High-Pass Filter		

CHIP PARTS REPLACEMENT

CHIP PARTS REPLACEMENT

Some resistors, shorting jumpers (0Ω resistor), ceramic capacitors, transistors and diodes are chip parts which are used for certain circuit elements. When replacing these parts, note the cautions as follows.

Cautions:

- Use fine tipped, well insulated soldering pencil (iron) about 30 watts and the tweezers.
- Melting the solder, remove the Chip Parts carefully not to tear off the copper foil of the printed circuit board.
- Discard removed chips; do not reuse them.
- Do not apply heat for more than 3 seconds to the new chip Parts.
- Avoid using a rubbing stroke when soldering.
- Take care not to scratch when soldering, or damage the Chip Parts.
- Supplementary cementing is not required.

1 Removal of chip Parts

(Resistors, capacitors, etc.)

- Grasp the part with tweezers. Melting the solder at both side alternately, remove the one side of the part with a twisting motion.
- Melt the solder at the other side and remove the part.

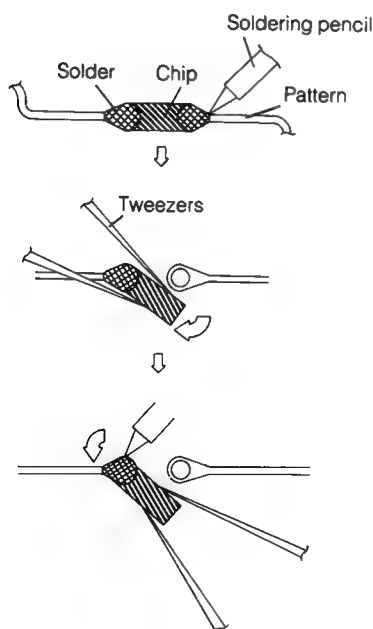


Fig. 1

2 Removal of Chip Parts (Transistors)

- Melting the solder of one lead, Lift the side of that lead upward.
- Simultaneously melt the solder of the two remaining leads and lift the part to remove.

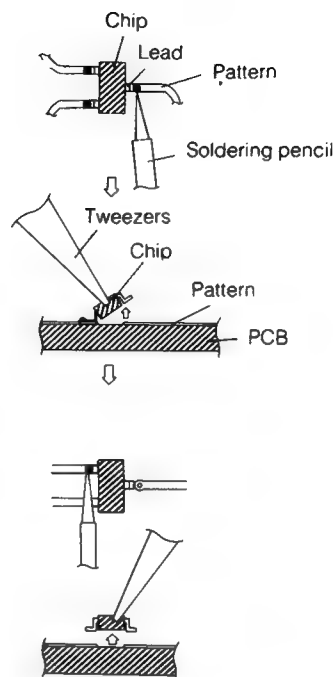


Fig. 2

3 Replacement

- Presolder the contact points of the circuit pattern.
- Press the part downward with tweezers and apply the soldering pencil as shown in the figure.

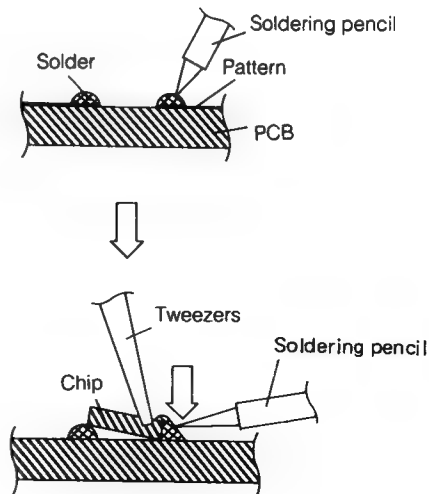
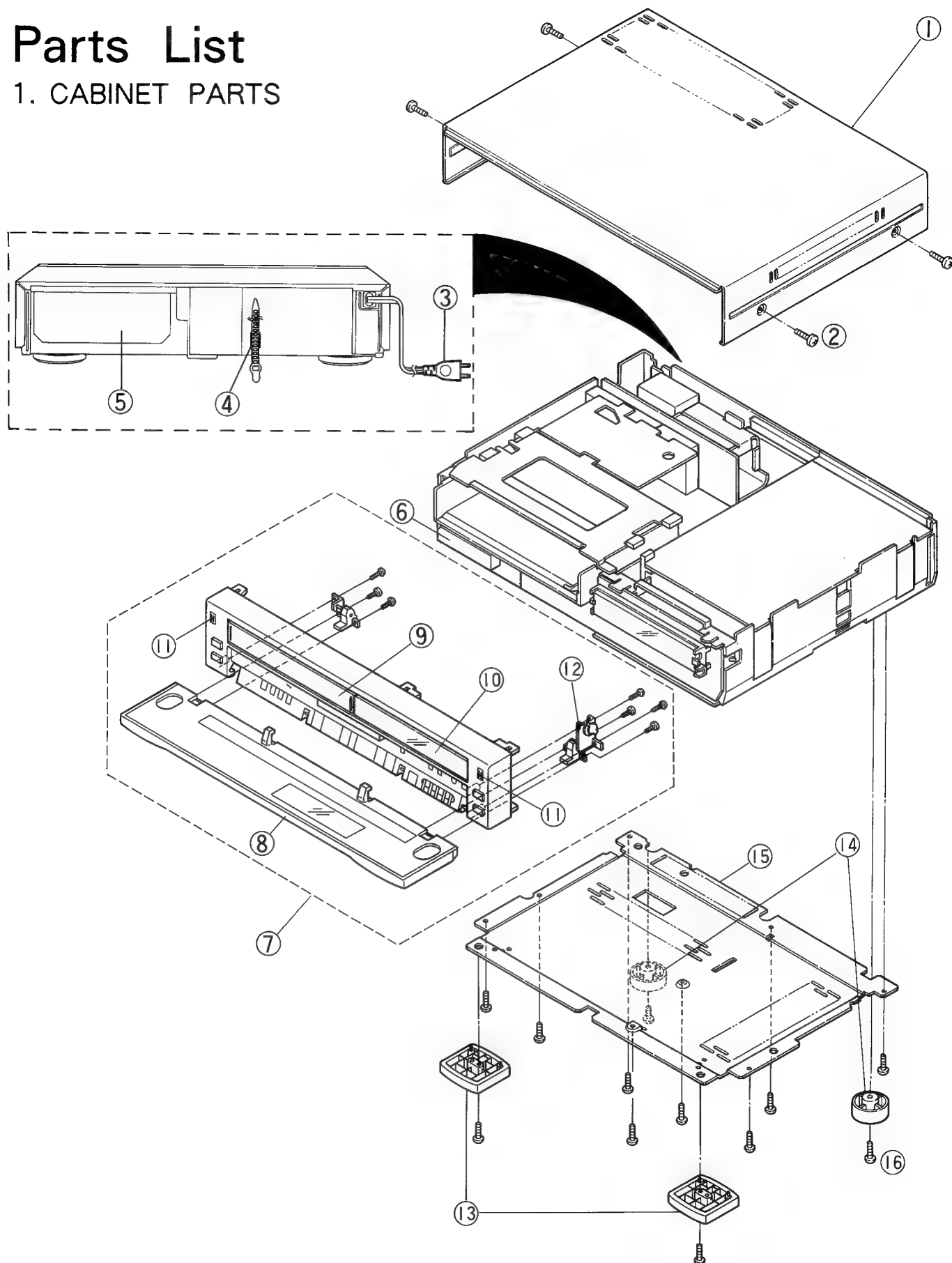


Fig. 3

[MEMO]

Parts List

1. CABINET PARTS

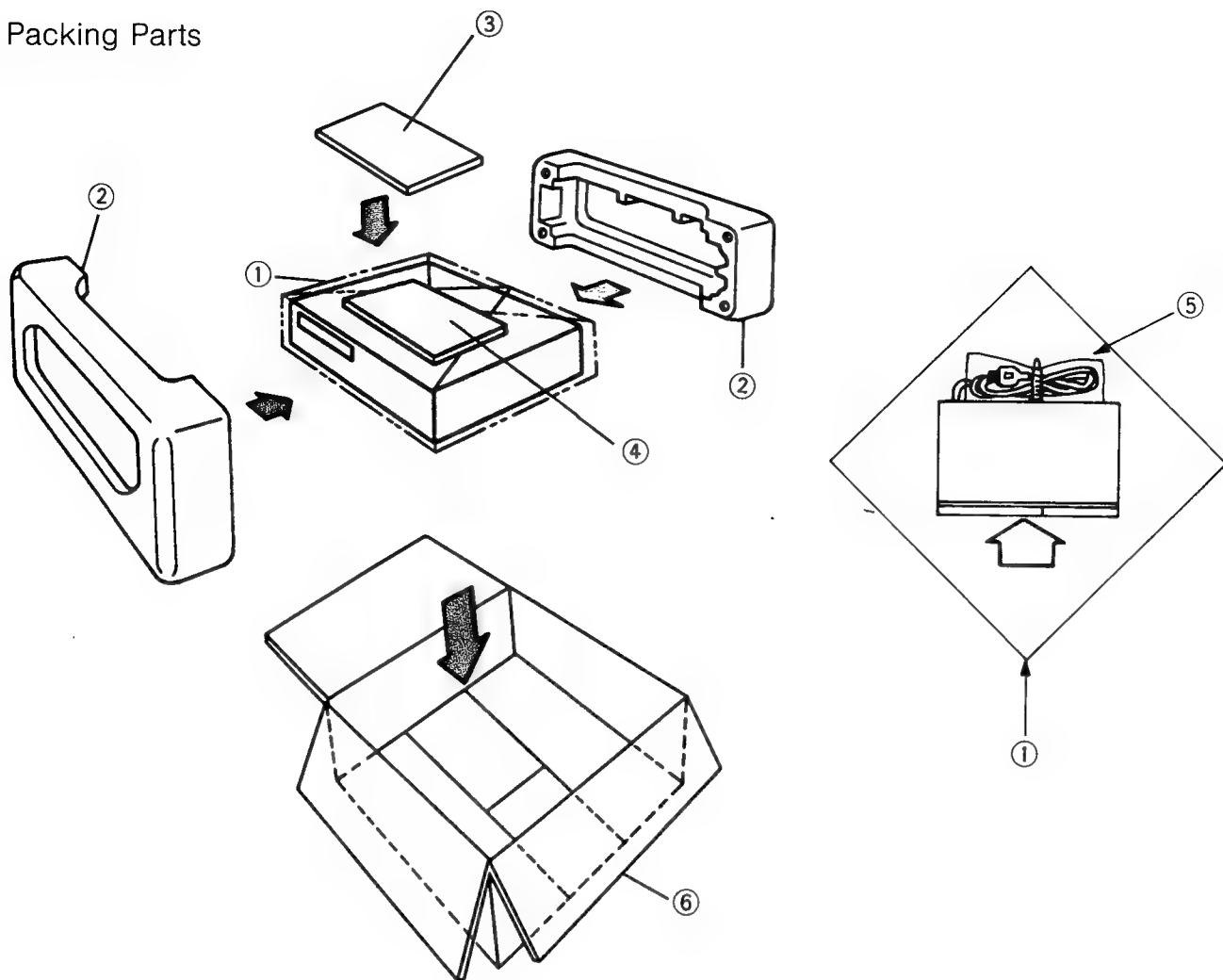


Note:

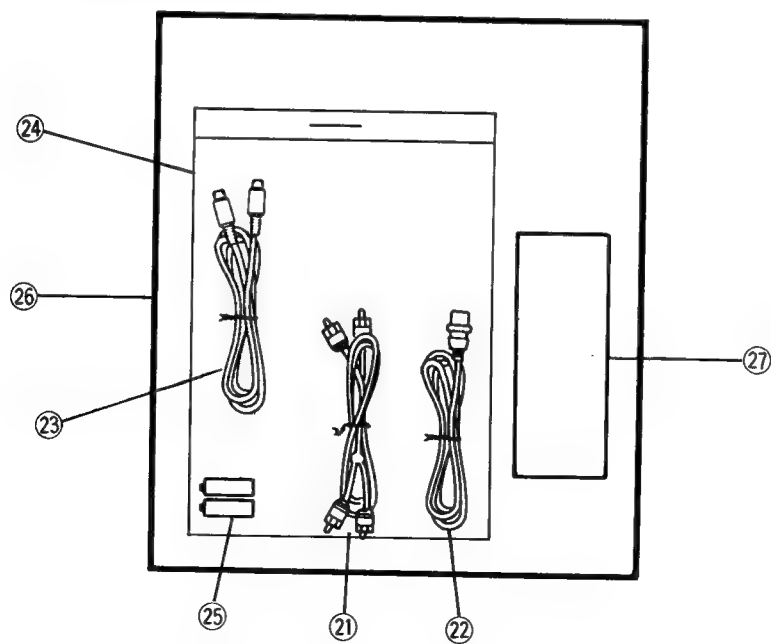
Broken AC power cord must be exchanged with a new original power cord.

ITEM NO.	PARTS NO.	PARTS NAME	DESCRIPTION
CABINET ASSEMBLY			
1	968C020030	TOP COVER ASSY	3X10
2	669D223080	SCREW	
3	246C092010	AC POWER CORD	
4	621C027010	CORD BAND	
5	761B237030	ANTENNA COVER	
6	440B125010	FRONT TERMINAL BOARD	
7	701B263020	FRONT UNIT	[67]
7	701B263080	FRONT UNIT	[67C]
8	752C011020	DOOR PANEL ASSY	[67]
8	752C011080	DOOR PANEL ASSY	[67C]
9	702B855060	CASSETTE DOOR	
10	702B853010	TIMER PANEL	
11	461C012020	DOOR MAGNET	
12	520C034020	DAMPER	[67]
12	520C034030	DAMPER	[67C]
13	771C135020	INSULATOR-F	
14	771C131010	INSULATOR-R	
15	590A267010	BOTTOM PANEL	
16	669D220030	SCREW	

2. Packing Parts



ACCESSORY-B



ITEM NO.	PARTS NO.	PARTS NAME	DESCRIPTION
PACKING PARTS			
1	831D190030	PACKING SHEET	800X800
2	803A296010	PACKING CUSHION	
3	-----	ACCESSORY-A	
4	-----	ACCESSORY-B	
5	831D198020	PACKING BAG	
6	801C186010	PACKING CASE	[67]
6	801C186020	PACKING CASE	[67C]
ACCESSORY - A			
	872C045040	INSTRUCTION BOOK	[67]
	872C045050	INSTRUCTION BOOK	ENGLISH [67C]
	872C045060	INSTRUCTION BOOK	FRENCH [67C]
	851B544010	SHEET CAUTION DEW	
	851C902010	CHANNEL MEMORY SHEET	
	831D181020	PACKING BAG	375X250X0.06
ACCESSORY - B			
21	242C938010	PHONO CABLE	2P R&W 1.5m
22	242D248020	RF CABLE	ANT-ANT 1.5m
23	242D335010	CABLE	S-S (4PIN) 1.5m
24	831D110080	PACKING BAG	150X280
25	-----	BATTERY	
26	829C035030	BOX ACCESSORY	
27	939P479010	REMOTE HAND UNIT	

3. ELECTRICAL PARTS

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
INTEGRATED CIRCUITS							
IC101	272P150010	IC	M51496P	Q 254	260P804020	CHIP TRANSISTOR	2SC3052-F
IC102	266P419010	IC	M5223P	Q 2A1	260P807010	CHIP TRANSISTOR	DTC124K
IC201	272P392010	IC	AN3334K	Q 2A2	260P807010	CHIP TRANSISTOR	DTC124K
IC250	272P220010	IC	TA7772P	Q 2A3	260P807010	CHIP TRANSISTOR	DTC124K
IC2A0	272P567020	IC	M52090AFP	Q 2A4	260P807010	CHIP TRANSISTOR	DTC124K
IC2A1	272P582010	IC	ADL-DN003M	Q 2A5	260P807010	CHIP TRANSISTOR	DTC124K
IC2A2	267P034020	IC	EMP2 (B079-2)	Q 2A6	260P818080	CHIP TRANSISTOR	2SC2412K-R
IC2A3	266P016010	IC	LA7016	Q 2A7	260P807010	CHIP TRANSISTOR	DTC124K
IC2A4	263P011020	IC	TC4011BP	Q 2A8	260P807010	CHIP TRANSISTOR	DTC124K
IC2AB	272P463010	IC	LA7221	Q 2A9	260P807010	CHIP TRANSISTOR	DTC124K
IC2AC	272P463010	IC	LA7221	Q 2AB	260P818080	CHIP TRANSISTOR	2SC2412K-R
IC2AD	272P372020	IC	NJM2244L	Q 2AC	260P807010	CHIP TRANSISTOR	DTC124K
IC2AE	272P402010	IC	NJM2243L	Q 2AD	260P807010	CHIP TRANSISTOR	DTC124K
IC2001	272P568010	IC	M52099P	Q 2AE	260P807010	CHIP TRANSISTOR	DTC124K
IC2002	272P512010	IC	MN3109S	Q 2AH	260P807010	CHIP TRANSISTOR	DTC124K
IC2003	272P513010	IC	MN3814	Q 2AJ	260P255040	TRANSISTOR	2SA950-Y
IC3S0	272P353010	IC	CXA1124AS	Q 2AK	260P807010	CHIP TRANSISTOR	DTC124K
IC3301	263P653010	IC	TC4053BF	Q 2AK	260P818080	CHIP TRANSISTOR	2SC2412K-R
IC3302	272P376020	IC	XRA15218F	Q 2AL	260P807010	CHIP TRANSISTOR	DTC124K
IC3304	272P844010	IC	AN3970NFBP	Q 2B1	260P807010	CHIP TRANSISTOR	DTC124K
IC4A0	274P158010	IC	BU2833S	Q 2B3	260P817030	CHIP TRANSISTOR	2SA1037K
IC4A1	272P237010	IC	LA6324N	Q 2B4	260P817030	CHIP TRANSISTOR	2SA1037K
IC4A2	272P235010	IC	TA7291S	Q 2B7	260P806010	CHIP TRANSISTOR	DTA124EK
IC501	274P169010	IC	M35010-050SP	Q 2BA	260P818080	CHIP TRANSISTOR	2SC2412K-R
IC502	272P438010	IC	LVA519S	Q 2BB	260P818080	CHIP TRANSISTOR	2SC2412K-R
IC5A0	274P165010	IC	M37424M8-318SP	Q 2BC	260P817030	CHIP TRANSISTOR	2SA1037K
IC5A1	263P011020	IC	TC4011BP	Q 2C1	260P817030	CHIP TRANSISTOR	2SA1037K
IC5A2	272P237010	IC	LA6324N	Q 2C2	260P817030	CHIP TRANSISTOR	2SA1037K
IC5Z1	266P419010	IC	M5223P	Q 2C3	260P807010	CHIP TRANSISTOR	DTC124K
IC6A0	272P233030	IC	LA7312A	Q 2C4	260P807010	CHIP TRANSISTOR	DTC124K
IC6A1	272P231020	IC	HA118054FP	Q 2C5	260P807010	CHIP TRANSISTOR	DTC124K
IC6A2	272P390010	IC	BA7604N	Q 2C6	260P818080	CHIP TRANSISTOR	2SC2412K-R
IC7A0	263P066020	IC	TC4066BP	Q 2C7	260P818080	CHIP TRANSISTOR	2SC2412K-R
IC7A1	272P200020	IC	M5201L	Q 2C8	260P818080	CHIP TRANSISTOR	2SC2412K-R
IC8A0	274P182010	IC	μ PD75217GF-600-3BE	Q 2C9	260P818080	CHIP TRANSISTOR	2SC2412K-R
IC8A1	263P593010	IC	CAT35C104P	Q 2CA	260P818080	CHIP TRANSISTOR	2SC2412K-R
IC901	272P237010	IC	LA6324N	Q 2CB	260P818080	CHIP TRANSISTOR	2SC2412K-R
TRANSISTORS				Q 2CC	260P806010	CHIP TRANSISTOR	DTA124EK
Q 101	260P818030	CHIP TRANSISTOR	2SC2412K	Q 2D0	260P817030	CHIP TRANSISTOR	2SA1037K
Q 102	260P817030	CHIP TRANSISTOR	2SA1037K	Q 2D1	260P807010	CHIP TRANSISTOR	DTC124K
Q 105	260P817030	CHIP TRANSISTOR	2SA1037K	Q 2D2	260P818080	CHIP TRANSISTOR	2SC2412K-R
Q 201	260P807010	CHIP TRANSISTOR	DTC124K	Q 2D3	260P817030	CHIP TRANSISTOR	2SA1037K
Q 202	260P807010	CHIP TRANSISTOR	DTC124K	Q 2D4	260P818080	CHIP TRANSISTOR	2SC2412K-R
Q 204	260P807010	CHIP TRANSISTOR	DTC124K	Q 2D6	260P817030	CHIP TRANSISTOR	2SA1037K
Q 206	260P806010	CHIP TRANSISTOR	DTA124EK	Q 2D7	260P818080	CHIP TRANSISTOR	2SC2412K-R
Q 207	260P804020	CHIP TRANSISTOR	2SC3052-F	Q 2D8	260P817030	CHIP TRANSISTOR	2SA1037K
Q 208	260P804020	CHIP TRANSISTOR	2SC3052-F	Q 2E0	260P807010	CHIP TRANSISTOR	DTC124K
Q 209	260P804020	CHIP TRANSISTOR	2SC3052-F	Q 2E1	260P818080	CHIP TRANSISTOR	2SC2412K-R
Q 210	260P802020	CHIP TRANSISTOR	2SA 1235-F	Q 2E2	260P818080	CHIP TRANSISTOR	2SC2412K-R
Q 250	260P560010	TRANSISTOR	2SA933S-R, S	Q 2E3	260P818080	CHIP TRANSISTOR	2SC2412K-R
Q 251	260P559040	TRANSISTOR	2SC1740S-R, S	Q 2E4	260P807010	CHIP TRANSISTOR	DTC124K
Q 252	260P802020	CHIP TRANSISTOR	2SA 1235-F	Q 2F3	260P818080	CHIP TRANSISTOR	2SC2412K-R
Q 253	260P804020	CHIP TRANSISTOR	2SC3052-F	Q 2G1	260P807010	CHIP TRANSISTOR	DTC124K
				Q 2G4	260P817030	CHIP TRANSISTOR	2SA1037K
				Q 2G5	260P817030	CHIP TRANSISTOR	2SA1037K

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION		SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
Q 2S4	260P818080	CHIP TRANSISTOR	2SC2412K-R		Q 508	260P559040	TRANSISTOR	2SC1740S-R, S
Q 2S5	260P807010	CHIP TRANSISTOR	DTC124K		Q 571	268P014020	PHOTO TRANSISTOR	PN205L- (NC)
Q 2S6	260P817030	CHIP TRANSISTOR	2SA1037K		Q 572	268P014020	PHOTO TRANSISTOR	PN205L- (NC)
Q 2S7	260P806010	CHIP TRANSISTOR	DTA124EK		Q 573	268P044010	PHOTO INTERRUPTER	ON2270- (LZ). MI
Q 2XA	260P807010	CHIP TRANSISTOR	DTC124K		Q 574	268P044010	PHOTO INTERRUPTER	ON2270- (LZ). MI
Q 2XB	260P807010	CHIP TRANSISTOR	DTC124K		Q 575	268P045010	PHOTO INTERRUPTER	GP1L52V
Q 2001	260P818080	CHIP TRANSISTOR	2SC2412K-R		Q 581	260P455010	TRANSISTOR	DTC124EF
Q 2002	260P817030	CHIP TRANSISTOR	2SA1037K		Q 582	260P455010	TRANSISTOR	DTC124EF
Q 2003	260P817030	CHIP TRANSISTOR	2SA1037K		Q 583	260P455010	TRANSISTOR	DTC124EF
Q 2004	260P818080	CHIP TRANSISTOR	2SC2412K-R		Q 5A0	260P559040	TRANSISTOR	2SC1740S-R, S
Q 2005	260P817030	CHIP TRANSISTOR	2SA1037K		Q 5A1	260P255040	TRANSISTOR	2SA950-Y
Q 2006	260P818080	CHIP TRANSISTOR	2SC2412K-R		Q 5A2	260P560010	TRANSISTOR	2SA933S-R, S
Q 2007	260P818080	CHIP TRANSISTOR	2SC2412K-R		Q 5A3	260P559040	TRANSISTOR	2SC1740S-R, S
Q 2008	260P817030	CHIP TRANSISTOR	2SA1037K		Q 5A4	260P559040	TRANSISTOR	2SC1740S-R, S
Q 2009	260P817030	CHIP TRANSISTOR	2SA1037K		Q 5A5	260P559040	TRANSISTOR	2SC1740S-R, S
Q 2010	260P818080	CHIP TRANSISTOR	2SC2412K-R		Q 5A6	260P560010	TRANSISTOR	2SA933S-R, S
Q 2011	260P807010	CHIP TRANSISTOR	DTC124K		Q 5A7	260P559050	TRANSISTOR	2SC1740S-E
Q 3S1	260P804020	CHIP TRANSISTOR	2SC3052-F		Q 5A8	260P560010	TRANSISTOR	2SA933S-R, S
Q 3S2	260P802020	CHIP TRANSISTOR	2SA 1235-F		Q 5A9	260P632010	TRANSISTOR	DTC124ES
Q 3S4	260P817030	CHIP TRANSISTOR	2SA1037K		Q 5B0	260P632010	TRANSISTOR	DTC124ES
Q 3S5	260P807010	CHIP TRANSISTOR	DTC124K	[67C]	Q 5B1	260P632010	TRANSISTOR	DTC124ES
Q 3S7	260P807010	CHIP TRANSISTOR	DTC124K		Q 5B2	260P632010	TRANSISTOR	DTC124ES
Q 3301	260P807010	CHIP TRANSISTOR	DTC124K		Q 5B3	260P632010	TRANSISTOR	DTC124ES
Q 3303	260P818030	CHIP TRANSISTOR	2SC2412K		Q 5B4	260P559040	TRANSISTOR	2SC1740S-R, S
Q 3306	260P559050	TRANSISTOR	2SC1740S-E		Q 5B5	260P559040	TRANSISTOR	2SC1740S-R, S
Q 3307	260P818030	CHIP TRANSISTOR	2SC2412K		Q 5B6	260P559040	TRANSISTOR	2SC1740S-R, S
Q 3308	260P818030	CHIP TRANSISTOR	2SC2412K		Q 5B7	260P562040	TRANSISTOR	2SA952-K
Q 3309	260P806010	CHIP TRANSISTOR	DTA124EK		Q 5B9	260P632010	TRANSISTOR	DTC124ES
Q 3310	260P818030	CHIP TRANSISTOR	2SC2412K		Q 5C0	260P560010	TRANSISTOR	2SA933S-R, S
Q 3311	260P818030	CHIP TRANSISTOR	2SC2412K		Q 5C1	260P632010	TRANSISTOR	DTC124ES
Q 3312	260P559040	TRANSISTOR	2SC1740S-R, S		Q 5C2	260P419030	TRANSISTOR	2SC2724-D
Q 3315	260P560010	TRANSISTOR	2SA933S-R, S		Q 5C3	260P632010	TRANSISTOR	DTC124ES
Q 3316	260C676040	TRANSISTOR	2SC3311A-R, S		Q 5C4	260P632010	TRANSISTOR	DTC124ES
Q 3317	260C676040	TRANSISTOR	2SC3311A-R, S		Q 5C5	260P632010	TRANSISTOR	DTC124ES
Q 3318	260P629060	TRANSISTOR	2SC3331-S, T, U		Q 5C6	260P632010	TRANSISTOR	DTC124ES
Q 3319	260P807010	CHIP TRANSISTOR	DTC124K		Q 5D0	260P559050	TRANSISTOR	2SC1740S-E
Q 3320	260P807010	CHIP TRANSISTOR	DTC124K		Q 5D1	260P559030	TRANSISTOR	2SC1740S-S
Q 3321	260P807010	CHIP TRANSISTOR	DTC124K		Q 5D2	260P560010	TRANSISTOR	2SA933S-R, S
Q 3322	260P818030	CHIP TRANSISTOR	2SC2412K		Q 5D3	260P559050	TRANSISTOR	2SC1740S-E
Q 3323	260P818030	CHIP TRANSISTOR	2SC2412K		Q 5D4	260P603010	TRANSISTOR	DTA124ES/UN4112
Q 3324	260P818030	CHIP TRANSISTOR	2SC2412K		Q 5D5	260P632010	TRANSISTOR	DTC124ES
Q 3325	260P806010	CHIP TRANSISTOR	DTA124EK		Q 5D6	260P632010	TRANSISTOR	DTC124ES
Q 4A0	260P632010	TRANSISTOR	DTC124ES		Q 5E0	260P603010	TRANSISTOR	DTA124ES/UN4112
Q 4A1	260P459070	TRANSISTOR	2SK381-A, B, C		Q 5E1	260P632010	TRANSISTOR	DTC124ES
Q 4A3	260P559060	TRANSISTOR	2SC1740S-S, E		Q 5E2	260P632010	TRANSISTOR	DTC124ES
Q 4A4	260P560040	TRANSISTOR	2SA933S-S		Q 5E3	260P603010	TRANSISTOR	DTA124ES/UN4112
Q 4A6	260P560010	TRANSISTOR	2SA933S-R, S		Q 5E4	260P559030	TRANSISTOR	2SC1740S-S
Q 4A7	260P560010	TRANSISTOR	2SA933S-R, S		Q 5E5	260P632010	TRANSISTOR	DTC124ES
Q 4A8	260P632010	TRANSISTOR	DTC124ES		Q 5E6	260P559040	TRANSISTOR	2SC1740S-R, S
Q 4A9	260P438020	TRANSISTOR	2SD1273, P M21C		Q 5G0	260P559040	TRANSISTOR	2SC1740S-R, S
Q 4B1	260P560010	TRANSISTOR	2SA933S-R, S		Q 5G1	260P560040	TRANSISTOR	2SA933S-S
Q 501	260P560010	TRANSISTOR	2SA933S-R, S		Q 5G2	260P632010	TRANSISTOR	DTC124ES
Q 503	260P560010	TRANSISTOR	2SA933S-R, S		Q 5G4	260P632010	TRANSISTOR	DTC124ES
Q 504	260P559050	TRANSISTOR	2SC1740S-E		Q 5G5	260P562040	TRANSISTOR	2SA952-K
Q 507	260P559040	TRANSISTOR	2SC1740S-R, S		Q 5S7	260P632010	TRANSISTOR	DTC124ES

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
Q 5T5	260P560010	TRANSISTOR	2SA933S-R, S	D 2A7	264P568010	DIODE	1SS252
Q 5T6	260P559040	TRANSISTOR	2SC1740S-R, S	D 2AA	264P568010	DIODE	1SS252
Q 5T7	260P560010	TRANSISTOR	2SA933S-R, S	D 2AB	264P568010	DIODE	1SS252
Q 5U1	260P603010	TRANSISTOR	DTA124ES/UN4112	D 2AC	264P568010	DIODE	1SS252
Q 5002	260P632010	TRANSISTOR	DTC124ES	D 2B0	264P452030	DIODE	HZ5C3
Q 5003	260P560030	TRANSISTOR	2SA933S	D 2B3	264P568010	DIODE	1SS252
Q 5004	260P562040	TRANSISTOR	2SA952-K	D 2XA	264P568010	DIODE	1SS252
Q 6A0	260P807010	CHIP TRANSISTOR	DTC124K	D 2XB	264P568010	DIODE	1SS252
Q 6A1	260P818080	CHIP TRANSISTOR	2SC2412K-R	D 3S2	264P568010	DIODE	1SS252
Q 6A2	260P818080	CHIP TRANSISTOR	2SC2412K-R	D 3305	264P568010	DIODE	1SS252
Q 6A3	260P806010	CHIP TRANSISTOR	DTA124EK	D 3306	264P568010	DIODE	1SS252
Q 6A4	260P818080	CHIP TRANSISTOR	2SC2412K-R	D 3310	264P568010	DIODE	1SS252
Q 6A5	260P818080	CHIP TRANSISTOR	2SC2412K-R	D 3311	264P568010	DIODE	1SS252
Q 6A7	260P818080	CHIP TRANSISTOR	2SC2412K-R	D 3312	264P568010	DIODE	1SS252
Q 6A9	260P818080	CHIP TRANSISTOR	2SC2412K-R	D 4A0	264P568010	DIODE	1SS252
Q 6B2	260P818080	CHIP TRANSISTOR	2SC2412K-R	D 4A5	264P568010	DIODE	1SS252
Q 6B3	260P817030	CHIP TRANSISTOR	2SA1037K	D 4A7	264P500020	DIODE	EM01Z
Q 6B4	260P818080	CHIP TRANSISTOR	2SC2412K-R	D 501	264P568010	DIODE	1SS252
Q 6B5	260P818080	CHIP TRANSISTOR	2SC2412K-R	D 570	264P307020	LIGHT EMITTING DIODE	GL-451
Q 6B6	260P632010	TRANSISTOR	DTC124ES	D 571	264P515010	DIODE	MA165
Q 6C0	260P562040	TRANSISTOR	2SA952-K	D 5A0	264P568010	DIODE	1SS252
Q 6C4	260P818080	CHIP TRANSISTOR	2SC2412K-R	D 5A1	264P568010	DIODE	1SS252
Q 6C6	260P818080	CHIP TRANSISTOR	2SC2412K-R	D 5A2	264P342070	DIODE	HZ4C2
Q 6Y1	260P817030	CHIP TRANSISTOR	2SA1037K	D 5A3	264P568010	DIODE	1SS252
Q 6Y2	260P818080	CHIP TRANSISTOR	2SC2412K-R	D 5A4	264P568010	DIODE	1SS252
Q 8A1	260P560010	TRANSISTOR	2SA933S-R, S	D 5A5	264P568010	DIODE	1SS252
Q 8A5	260P560050	TRANSISTOR	2SA933S-Q	D 5A6	264P568010	DIODE	1SS252
Q 8F0	260P560010	TRANSISTOR	2SA933S-R, S	D 5A7	264P568010	DIODE	1SS252
Q 8F2	260P560010	TRANSISTOR	2SA933S-R, S	D 5A8	264P568010	DIODE	1SS252
Q 8F4	260P559040	TRANSISTOR	2SC1740S-R, S	D 5A9	264P568010	DIODE	1SS252
Q 8F5	260P559040	TRANSISTOR	2SC1740S-R, S	D 5B1	264P568010	DIODE	1SS252
Q 8F6	260P559040	TRANSISTOR	2SC1740S-R, S	D 5B2	264P568010	DIODE	1SS252
Q 8S4	260P603010	TRANSISTOR	DTA124ES/UN4112	D 5B3	264P568010	DIODE	1SS252
Q 8S7	260P559020	TRANSISTOR	2SC1740S-R	D 5B4	264P568010	DIODE	1SS252
Q 8S8	260P559040	TRANSISTOR	2SC1740S-R, S	D 5B5	264P568010	DIODE	1SS252
Q 8S9	260P559040	TRANSISTOR	2SC1740S-R, S	D 5B6	264P568010	DIODE	1SS252
Q 902	260P628060	TRANSISTOR	2SA1619A-Q, R, S	D 5B7	264P568010	DIODE	1SS252
Q 906	260P630010	TRANSISTOR	2SD2012	D 5B8	264P568010	DIODE	1SS252
Q 907	260P630010	TRANSISTOR	2SD2012	D 5B9	264P342080	DIODE	HZ6B1
Q 908	260P630010	TRANSISTOR	2SD2012	D 5C0	264P568010	DIODE	1SS252
Q 971	260P630010	TRANSISTOR	2SD2012	D 5C3	264P568010	DIODE	1SS252
DIODES				D 5C5	264P568010	DIODE	1SS252
D 101	264P460080	DIODE	EQA02-05E/RD5. 1EB3	D 5C8	264P568010	DIODE	1SS252
D 201	264P822010	CHIP DIODE	HSM2838	D 5C9	264P568010	DIODE	1SS252
D 250	264P568010	DIODE	1SS252	D 5D1	264P568010	DIODE	1SS252
D 251	264P568010	DIODE	1SS252	D 5D2	264P568010	DIODE	1SS252
D 252	264P459030	DIODE	RD4. 7EB1	D 5D3	264P568010	DIODE	1SS252
D 260	264P568010	DIODE	1SS252	D 5D4	264P489070	DIODE	RD18FB3
D 261	264P568010	DIODE	1SS252	D 5D8	264P568010	DIODE	1SS252
D 2A1	264P568010	DIODE	1SS252	D 5D9	264P568010	DIODE	1SS252
D 2A2	264P568010	DIODE	1SS252	D 5Z0	264P568010	DIODE	1SS252
D 2A3	264P568010	DIODE	1SS252	D 5Z1	264P568010	DIODE	1SS252
D 2A4	264P568010	DIODE	1SS252	D 5Z2	264P568010	DIODE	1SS252
				D 5Z3	264P568010	DIODE	1SS252
				D 6A0	264P568010	DIODE	1SS252

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION		SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
D 6A1	264P568010	DIODE	1SS252		BPF6A0	409P316030	BAND PASS FILTER	ZLB-5K4206
D 6A2	264P568010	DIODE	1SS252		BPF6A1	409P421010	BAND PASS FILTER	MYV-30M
D 6A3	264P568010	DIODE	1SS252		CF101	296P024020	CERAMIC TRAP	TPS4. 5MB7
D 6A4	264P568010	DIODE	1SS252		CF151	296P014010	CERAMIC FILTER	4. 5MHz
D 6A5	264P568010	DIODE	1SS252		CF152	296P087010	CERAMIC FILTER	CDA4. 5ME23
D 6B6	264P822010	CHIP DIODE	HSM2838	[67C]	CF5A0	299P116010	CERAMIC RESONATOR	KBR-4. OKES
D 7A1	264P515010	DIODE	MA165		LPF2A0	409P439030	LOW PASS FILTER	SEL459101
D 7A2	264P515010	DIODE	MA165		LPF2A1	409P650010	LOW PASS FILTER	3167PBD
D 7A3	264P515010	DIODE	MA165		LPF6A0	409P438010	LOW PASS FILTER	MYV-2A6
D 8A0	264P568010	DIODE	1SS252		SF101	296P086010	SAW FILTER	F52JM
D 8A1	264P568010	DIODE	1SS252		DELAY LINES			
D 8A2	264P568010	DIODE	1SS252		DF2001	337P141010	DELAY LINE	
D 8A4	264P568010	DIODE	1SS252		DF6A0	409P578010	DELAY EQUALIZER	
D 8C7	264P193080	DIODE	MZ30982/HZ9824		DL6A0	337P163010	DELAY LINE	ADL-FN2038M
D 8D5	264P464060	DIODE	EQA02-10D		DL6A1	337P091010	DELAY LINE	
D 8D7	264P568010	DIODE	1SS252		LF2001	409P433030	DELAY EQUALIZER	TCV-4007
D 8D8	264P568010	DIODE	1SS252		COILS			
D 8E0	264P501040	DIODE	HZ3ALL		L 102	323P172010	VIF COIL	
D 8F2	264P104040	DIODE	HZ30-2		L 103	323P111070	VIF COIL	45. 75MHz
D 8S0	264P568010	DIODE	1SS252		L 106	325C124080	PEAKING COIL	0. 56 μ H-K
D 8S1	264P568010	DIODE	1SS252		L 107	325C170010	PEAKING COIL	1. 0 μ H-K
D 8S3	264P568010	DIODE	1SS252		L 109	325C166060	PEAKING COIL	18 μ H-J
D 8S4	264P568010	DIODE	1SS252		L 110	325C267050	PEAKING COIL	100 μ H-J
D 8S5	264P568010	DIODE	1SS252		L 111	325C122050	PEAKING COIL	100 μ H-K
D 8S6	264P568010	DIODE	1SS252		L 114	325C121030	PEAKING COIL	10 μ H-K
D 8S7	264P568010	DIODE	1SS252		L 150	325C121040	PEAKING COIL	12 μ H-K
D 8S8	264P568010	DIODE	1SS252		L 152	325C166090	PEAKING COIL	33 μ H-J
D 8S9	264P568010	DIODE	1SS252		L 201	325C262050	PEAKING COIL	100 μ H-K
D 8T1	264P568010	DIODE	1SS252		L 202	325C262050	PEAKING COIL	100 μ H-K
D 8T2	264P568010	DIODE	1SS252		L 203	325C262050	PEAKING COIL	100 μ H-K
D 8X2	264P568010	DIODE	1SS252		L 205	325C166090	PEAKING COIL	33 μ H-J
D 8X3	264P568010	DIODE	1SS252		L 2A0	325C262050	PEAKING COIL	100 μ H-K
D 8X5	264P572020	LIGHT EMITTING DIODE	SEL 2410E		L 2A2	325C262050	PEAKING COIL	100 μ H-K
D 8X6	264P572020	LIGHT EMITTING DIODE	SEL 2410E		L 2A3	325C166050	PEAKING COIL	15 μ H-J
D 8X7	264P572020	LIGHT EMITTING DIODE	SEL 2410E		L 2A4	325C166080	PEAKING COIL	27 μ H-J
D 8X8	264P572020	LIGHT EMITTING DIODE	SEL 2410E		L 2A5	325C262050	PEAKING COIL	100 μ H-K
D 901	264P101050	DIODE	RM 1B		L 2A9	325C262050	PEAKING COIL	100 μ H-K
D 902	264P101050	DIODE	RM 1B		L 2AA	325C167040	PEAKING COIL	82 μ H-J
D 903	264P101050	DIODE	RM 1B		L 2AB	325C167020	PEAKING COIL	56 μ H-J
D 904	264P101050	DIODE	RM 1B		L 2AC	325C267050	PEAKING COIL	100 μ H-J
D 905	264P101050	DIODE	RM 1B		L 2AD	325C267050	PEAKING COIL	100 μ H-J
D 906	264P101050	DIODE	RM 1B		L 2B0	325C262050	PEAKING COIL	100 μ H-K
D 907	264P101050	DIODE	RM 1B		L 2B1	325C166090	PEAKING COIL	33 μ H-J
D 908	264P101050	DIODE	RM 1B		L 2B2	325C167020	PEAKING COIL	56 μ H-J
D 909	264P294010	DIODE	EM 1Z		L 2B3	325C166080	PEAKING COIL	27 μ H-J
D 910	264P294010	DIODE	EM 1Z		L 2B4	325C166040	PEAKING COIL	12 μ H-J
D 911	264P294010	DIODE	EM 1Z		L 2B5	325C166090	PEAKING COIL	33 μ H-J
D 912	264P294010	DIODE	EM 1Z		L 2B6	325C166030	PEAKING COIL	10 μ H-J
D 913	264P500020	DIODE	EM01Z		L 2B7	325C262050	PEAKING COIL	100 μ H-K
D 914	264P500020	DIODE	EM01Z		L 2B8	325C167000	PEAKING COIL	39 μ H-J
D 917	264P104040	DIODE	HZ30-2		L 2B9	325C262050	PEAKING COIL	100 μ H-K
D 919	264P568010	DIODE	1SS252		L 2C2	325C167040	PEAKING COIL	82 μ H-J
FILTERS					L 2D6	325C167090	PEAKING COIL	220 μ H-J
BF2001	409P448030	BAND PASS FILTER	TCV-2034					

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION		SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
L 2L3	325C168000	PEAKING COIL	270 μ H-J		VR201	127C180070	VR-SEMI FIXED	1/5W B5k Ω -M
L 2L4	325C167040	PEAKING COIL	82 μ H-J		VR202	127C180050	VR-SEMI FIXED	1/5W B2k Ω -M
L 2L5	325C166080	PEAKING COIL	27 μ H-J		VR250	127C180060	VR-SEMI FIXED	1/5W B3k Ω -M
L 2L6	325C167050	PEAKING COIL	100 μ H-J		VR2A0	127C281000	VR-SEMI FIXED	1/10W B30k Ω -N
L 2L7	325C262050	PEAKING COIL	100 μ H-K		VR2A1	127C091010	VR-SEMI FIXED	1/5W B50k Ω -M
L 2T0	325C166070	PEAKING COIL	22 μ H-J		VR2A2	127C091010	VR-SEMI FIXED	1/5W B50k Ω -M
L 2V0	325C167080	PEAKING COIL	180 μ H-J		VR2A3	127C091000	VR-SEMI FIXED	1/5W B30k Ω -M
L 2001	325C262050	PEAKING COIL	100 μ H-K		VR2A4	127C281000	VR-SEMI FIXED	1/10W B30k Ω -N
L 2002	325C262050	PEAKING COIL	100 μ H-K		VR2A7	127C280080	VR-SEMI FIXED	1/10W B10k Ω -N
L 2003	325C262050	PEAKING COIL	100 μ H-K		VR2A9	127C091010	VR-SEMI FIXED	1/5W B50k Ω -M
L 2004	325C165090	PEAKING COIL	4.7 μ H-J		VR2B0	127C091000	VR-SEMI FIXED	1/5W B30k Ω -M
L 2005	325C165090	PEAKING COIL	4.7 μ H-J		VR2B4	127C280070	VR-SEMI FIXED	1/10W B5k Ω -N
L 2006	325C262050	PEAKING COIL	100 μ H-K		VR2B7	127C280040	VR-SEMI FIXED	1/10W B1k Ω -N
L 2007	325C262050	PEAKING COIL	100 μ H-K		VR2B9	127C280070	VR-SEMI FIXED	1/10W B5k Ω -N
L 2008	325C166070	PEAKING COIL	22 μ H-J		VR2C0	127C080040	VR-SEMI FIXED	1/5W B1k Ω -M
L 2009	325C167010	PEAKING COIL	47 μ H-J		VR2000	127C080040	VR-SEMI FIXED	1/5W B1k Ω -M
L 3S1	321C011050	RF COIL	8200 μ H-J		VR2002	127C080050	VR-SEMI FIXED	1/5W B2k Ω -M
L 3S2	321C011050	RF COIL	8200 μ H-J		VR2003	127C080040	VR-SEMI FIXED	1/5W B1k Ω -M
L 3301	321C011050	RF COIL	8200 μ H-J		VR2004	127C080040	VR-SEMI FIXED	1/5W B1k Ω -M
L 3302	321C114090	RF COIL	10000 μ H-J		VR3S0	127C090090	VR-SEMI FIXED	1/5W B20k Ω -M
L 3305	321C010040	RF COIL	1000 μ H-J		VR3S1	127C091010	VR-SEMI FIXED	1/5W B50k Ω -M
L 3306	325C168040	PEAKING COIL	560 μ H-J		VR3S2	127C080070	VR-SEMI FIXED	1/5W B5k Ω -M
L 3307	325C167080	PEAKING COIL	180 μ H-J		VR3S3	127C080080	VR-SEMI FIXED	1/5W B10k Ω -M
L 501	325C122050	PEAKING COIL	100 μ H-K		VR3301	127C081000	VR-SEMI FIXED	1/5W B30k Ω -M
L 502	325C266050	PEAKING COIL	15 μ H-J		VR3302	127C081000	VR-SEMI FIXED	1/5W B30k Ω -M
L 503	325C267050	PEAKING COIL	100 μ H-J		VR3303	127C090080	VR-SEMI FIXED	1/5W B10k Ω -M
L 570	299P124010	LATCH MAGNET			VR3304	127C090080	VR-SEMI FIXED	1/5W B10k Ω -M
L 5A0	325C262050	PEAKING COIL	100 μ H-K		VR3306	127C090040	VR-SEMI FIXED	1/5W B1k Ω -M
L 5A1	325C124080	PEAKING COIL	0.56 μ H-M		VR3308	127C080080	VR-SEMI FIXED	1/5W B10k Ω -M
L 5A2	325C166070	PEAKING COIL	22 μ H-J		VR3309	127C080080	VR-SEMI FIXED	1/5W B10k Ω -M
L 5A4	325C120010	PEAKING COIL	1.0 μ H-M	[67C]	VR3311	127C281020	VR-SEMI FIXED	1/10W B100k Ω -N
L 5A7	325C261030	PEAKING COIL	10 μ H-K		VR4A0	127C191020	VR-SEMI FIXED	1/10W B100k Ω -M
L 5001	325C122050	PEAKING COIL	100 μ H-K		VR501	127C190080	VR-SEMI FIXED	1/5W B10k Ω -M
L 5002	325C166050	PEAKING COIL	15 μ H-J		VR6A0	127C080020	VR-SEMI FIXED	1/10W B300 Ω -M
L 6A2	325C168010	PEAKING COIL	330 μ H-J		VR7A1	129D159080	VR-PCB	1/20W B50k Ω -25TM CS
L 6A3	325C167010	PEAKING COIL	47 μ H-J		VR7A2	129D159080	VR-PCB	1/20W B50k Ω -25TM CS
L 6A4	325C167000	PEAKING COIL	39 μ H-J		VR7A3	129D159070	VR-PCB	1/20W B50k Ω -25TM
L 6A5	325C165070	PEAKING COIL	3.3 μ H-J		RESISTORS			
L 6A6	325C267050	PEAKING COIL	100 μ H-J		R 101	103P401030	CHIP RESISTOR	1/10W 100 Ω -J
L 6A7	325C267050	PEAKING COIL	100 μ H-J		R 102	103P403030	CHIP RESISTOR	1/10W 4.7k Ω -J
L 6A8	325C166050	PEAKING COIL	15 μ H-J		R 104	103P402070	CHIP RESISTOR	1/10W 1.5k Ω -J
L 6A9	325C267050	PEAKING COIL	100 μ H-J		R 105	103P402070	CHIP RESISTOR	1/10W 1.5k Ω -J
L 6B0	325C167050	PEAKING COIL	100 μ H-J		R 106	103P402050	CHIP RESISTOR	1/10W 1k Ω -J
L 6B1	325C168070	PEAKING COIL	1000 μ H-J	[67]	R 107	103P401070	CHIP RESISTOR	1/10W 220 Ω -J
L 6B1	325C168020	PEAKING COIL	390 μ H-J	[67C]	R 111	103P403040	CHIP RESISTOR	1/10W 5.6k Ω -J
L 6B2	325C167050	PEAKING COIL	100 μ H-J	[67C]	R 112	103P402050	CHIP RESISTOR	1/10W 1k Ω -J
VL6A0	349P182010	DL MATCH	S-7GD		R 113	103P401070	CHIP RESISTOR	1/10W 220 Ω -J
TRANSFORMERS					R 115	103P402050	CHIP RESISTOR	1/10W 1k Ω -J
T 3301	409P423030	AUDIO BIAS OSC	705720044D		R 116	103P402090	CHIP RESISTOR	1/10W 2.2k Ω -J
T 901	350P542010	POWER			R 117	103P402050	CHIP RESISTOR	1/10W 1k Ω -J
VARIABLE RESISTORS					R 118	103P403000	CHIP RESISTOR	1/10W 2.7k Ω -J
VR101	127C080090	VR-SEMI FIXED	1/5W B20k Ω -M		R 119	103P402080	CHIP RESISTOR	1/10W 1.8k Ω -J
VR103	127C080050	VR-SEMI FIXED	1/5W B2k Ω -M		R 120	103P402050	CHIP RESISTOR	1/10W 1k Ω -J
					R 121	103P402020	CHIP RESISTOR	1/10W 560 Ω -J

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
R 122	103P402010	CHIP RESISTOR	1/10W 470Ω-J	R 2A4	103P402010	CHIP RESISTOR	1/10W 470Ω-J
R 123	103P404080	CHIP RESISTOR	1/10W 82kΩ-J	R 2A5	103P473070	CHIP RESISTOR	1/10W 3.3kΩ-F
R 125	103P405020	CHIP RESISTOR	1/10W 180kΩ-J	R 2A6	103P474060	CHIP RESISTOR	1/10W 7.5kΩ-F
R 128	103P352070	CHIP RESISTOR	1/8W 1.5kΩ-J	R 2A7	103P474040	CHIP RESISTOR	1/10W 6.2kΩ-F
R 151	103P405030	CHIP RESISTOR	1/10W 220kΩ-J	R 2A9	103P409050	CHIP RESISTOR	1/10W 0Ω
R 152	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J	R 2AA	103P409050	CHIP RESISTOR	1/10W 0Ω
R 153	103P401080	CHIP RESISTOR	1/10W 270Ω-J	R 2AB	103P409050	CHIP RESISTOR	1/10W 0Ω
R 184	103P476080	CHIP RESISTOR	1/10W 62kΩ-F	R 2AC	103P409050	CHIP RESISTOR	1/10W 0Ω
R 185	103P475020	CHIP RESISTOR	1/10W 13kΩ-F	R 2AD	103P409050	CHIP RESISTOR	1/10W 0Ω
R 186	103P475080	CHIP METAL	1/10W 24kΩ-F	R 2AE	103P409050	CHIP RESISTOR	1/10W 0Ω
R 187	103P404040	CHIP RESISTOR	1/10W 39kΩ-J	R 2AF	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 188	103P404040	CHIP RESISTOR	1/10W 39kΩ-J	R 2AG	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 189	103P404050	CHIP RESISTOR	1/10W 47kΩ-J	R 2AH	103P409050	CHIP RESISTOR	1/10W 0Ω
R 190	103P404050	CHIP RESISTOR	1/10W 47kΩ-J	R 2AJ	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 191	103P404090	CHIP RESISTOR	1/10W 100kΩ-J	R 2AK	103P409050	CHIP RESISTOR	1/10W 0Ω
R 201	103P472050	CHIP RESISTOR	1/10W 1kΩ-F	R 2AL	103P409050	CHIP RESISTOR	1/10W 0Ω
R 203	103P400010	CHIP RESISTOR	1/10W 10Ω-J	R 2AM	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 204	103P472040	CHIP RESISTOR	1/10W 910Ω-F	R 2AP	103P471020	CHIP RESISTOR	1/10W 300Ω-F
R 205	103P472060	CHIP RESISTOR	1/10W 1.1kΩ-F	R 2AQ	103P409090	CHIP RESISTOR	1/10W 75Ω-J
R 206	103P400010	CHIP RESISTOR	1/10W 10Ω-J	R 2AT	103P401030	CHIP RESISTOR	1/10W 100Ω-J
R 207	103P400010	CHIP RESISTOR	1/10W 10Ω-J	R 2AU	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 208	103P472080	CHIP RESISTOR	1/10W 1.3kΩ-F	R 2AV	103P401070	CHIP RESISTOR	1/10W 220Ω-J
R 209	103P471020	CHIP RESISTOR	1/10W 300Ω-F	R 2AW	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 210	103P471020	CHIP RESISTOR	1/10W 300Ω-F	R 2AX	103P403020	CHIP RESISTOR	1/10W 3.9kΩ-J
R 211	103P472030	CHIP RESISTOR	1/10W 820Ω-F	R 2AY	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 212	103P471050	CHIP RESISTOR	1/10W 390Ω-F	R 2B0	103P409050	CHIP RESISTOR	1/10W 0Ω
R 213	103P402060	CHIP RESISTOR	1/10W 1.2kΩ-J	R 2B1	103P471040	CHIP RESISTOR	1/10W 360Ω-F
R 214	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J	R 2B2	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 215	103P401050	CHIP RESISTOR	1/10W 150Ω-J	R 2B3	103P401010	CHIP RESISTOR	1/10W 68Ω-J
R 216	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J	R 2B4	103P473060	CHIP RESISTOR	1/10W 3kΩ-F
R 219	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2B5	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 222	103P472090	CHIP RESISTOR	1/10W 1.5kΩ-F	R 2B7	103P405000	CHIP RESISTOR	1/10W 120kΩ-J
R 223	103P402060	CHIP RESISTOR	1/10W 1.2kΩ-J	R 2B8	103P404090	CHIP RESISTOR	1/10W 100kΩ-J
R 224	103P402060	CHIP RESISTOR	1/10W 1.2kΩ-J	R 2B9	103P403000	CHIP RESISTOR	1/10W 2.7kΩ-J
R 226	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J	R 2BB	103P402080	CHIP RESISTOR	1/10W 1.8kΩ-J
R 247	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2BC	103P401060	CHIP RESISTOR	1/10W 180Ω-J
R 250	103P402020	CHIP RESISTOR	1/10W 560Ω-J	R 2BD	103P409090	CHIP RESISTOR	1/10W 75Ω-J
R 251	103P402020	CHIP RESISTOR	1/10W 560Ω-J	R 2BE	103P470040	CHIP METAL	1/10W 130Ω-F
R 252	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J	R 2BF	103P401090	CHIP RESISTOR	1/10W 330Ω-J
R 253	103P401060	CHIP RESISTOR	1/10W 180Ω-J	R 2BG	103P409090	CHIP RESISTOR	1/10W 75Ω-J
R 254	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J	R 2BH	103P409090	CHIP RESISTOR	1/10W 75Ω-J
R 255	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2BJ	103P409090	CHIP RESISTOR	1/10W 75Ω-J
R 256	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2BL	103P409090	CHIP RESISTOR	1/10W 75Ω-J
R 257	103P404010	CHIP RESISTOR	1/10W 22kΩ-J	R 2BM	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 258	103P401060	CHIP RESISTOR	1/10W 180Ω-J	R 2BP	103P402080	CHIP RESISTOR	1/10W 1.8kΩ-J
R 260	103P401060	CHIP RESISTOR	1/10W 180Ω-J	R 2BQ	103P403020	CHIP RESISTOR	1/10W 3.9kΩ-J
R 275	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 2BR	103P473040	CHIP RESISTOR	1/10W 2.4kΩ-F
R 278	103P401070	CHIP RESISTOR	1/10W 220Ω-J	R 2C0	103P472020	CHIP RESISTOR	1/10W 750Ω-F
R 280	103P400010	CHIP RESISTOR	1/10W 10Ω-J	R 2C1	103P403090	CHIP RESISTOR	1/10W 15kΩ-J
R 287	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J	R 2C7	103P404020	CHIP RESISTOR	1/10W 27kΩ-J
R 288	103P402080	CHIP RESISTOR	1/10W 1.8kΩ-J	R 2C8	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 293	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2C9	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 297	103P401070	CHIP RESISTOR	1/10W 220Ω-J	R 2CB	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 298	103P404010	CHIP RESISTOR	1/10W 22kΩ-J	R 2CC	103P401070	CHIP RESISTOR	1/10W 220Ω-J
R 299	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 2CD	103P401070	CHIP RESISTOR	1/10W 220Ω-J

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
R 2CE	103P402000	CHIP RESISTOR	1/10W 390Ω-J	R 2J9	103P401090	CHIP RESISTOR	1/10W 330Ω-J
R 2CF	103P403000	CHIP RESISTOR	1/10W 2.7kΩ-J	R 2K0	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 2CG	103P409050	CHIP RESISTOR	1/10W 0Ω	R 2K1	103P401060	CHIP RESISTOR	1/10W 180Ω-J
R 2D0	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 2K2	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 2D3	103P403090	CHIP RESISTOR	1/10W 15kΩ-J	R 2K3	103P473000	CHIP RESISTOR	1/10W 1.6kΩ-F
R 2D4	103P404000	CHIP RESISTOR	1/10W 18kΩ-J	R 2K4	103P402000	CHIP RESISTOR	1/10W 390Ω-J
R 2D5	103P402080	CHIP RESISTOR	1/10W 1.8kΩ-J	R 2K5	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 2D7	103P409050	CHIP RESISTOR	1/10W 0Ω	R 2K6	103P403080	CHIP RESISTOR	1/10W 12kΩ-J
R 2D9	103P404050	CHIP RESISTOR	1/10W 47kΩ-J	R 2K7	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 2DA	103P409050	CHIP RESISTOR	1/10W 0Ω [67]	R 2K8	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 2DA	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J [67C]	R 2L0	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 2DB	103P404030	CHIP RESISTOR	1/10W 33kΩ-J	R 2L1	103P403080	CHIP RESISTOR	1/10W 12kΩ-J
R 2DC	103P403070	CHIP RESISTOR	1/10W 10kΩ-J [67C]	R 2L2	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 2E1	103P404050	CHIP RESISTOR	1/10W 47kΩ-J	R 2L4	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 2E2	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 2L6	103P402080	CHIP RESISTOR	1/10W 1.8kΩ-J
R 2E3	103P404010	CHIP RESISTOR	1/10W 22kΩ-J	R 2M0	103P409050	CHIP RESISTOR	1/10W 0Ω
R 2E4	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2M2	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 2E5	103P402020	CHIP RESISTOR	1/10W 560Ω-J	R 2M3	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 2E6	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J	R 2M4	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 2E7	103P401070	CHIP RESISTOR	1/10W 220Ω-J	R 2M5	103P404000	CHIP RESISTOR	1/10W 18kΩ-J
R 2E9	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2M6	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 2F0	103P403000	CHIP RESISTOR	1/10W 2.7kΩ-J	R 2M7	103P404020	CHIP RESISTOR	1/10W 27kΩ-J
R 2F1	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2N0	103P401070	CHIP RESISTOR	1/10W 220Ω-J
R 2F2	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2N1	103P401080	CHIP RESISTOR	1/10W 270Ω-J
R 2F3	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2N3	103P402010	CHIP RESISTOR	1/10W 470Ω-J [67]
R 2F4	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2N3	103P402040	CHIP RESISTOR	1/10W 820Ω-J [67C]
R 2F5	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J	R 2N4	103P409050	CHIP RESISTOR	1/10W 0Ω
R 2F6	103P401070	CHIP RESISTOR	1/10W 220Ω-J	R 2N5	103P402040	CHIP RESISTOR	1/10W 820Ω-J
R 2F7	103P402000	CHIP RESISTOR	1/10W 390Ω-J	R 2N6	103P401070	CHIP RESISTOR	1/10W 220Ω-J
R 2F8	103P403060	CHIP RESISTOR	1/10W 8.2kΩ-J	R 2N9	103P402020	CHIP RESISTOR	1/10W 560Ω-J
R 2F9	103P404030	CHIP RESISTOR	1/10W 33kΩ-J	R 2O3	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J
R 2G0	103P404010	CHIP RESISTOR	1/10W 22kΩ-J	R 2O4	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 2G1	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J	R 2O6	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 2G2	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J	R 2O8	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 2G3	103P402060	CHIP RESISTOR	1/10W 1.2kΩ-J	R 2O9	103P402010	CHIP RESISTOR	1/10W 470Ω-J
R 2G4	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J	R 2R0	103P402010	CHIP RESISTOR	1/10W 470Ω-J
R 2G5	103P472020	CHIP RESISTOR	1/10W 750Ω-F	R 2R2	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J [67C]
R 2G6	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J	R 2T6	103P409050	CHIP RESISTOR	1/10W 0Ω
R 2G7	103P402040	CHIP RESISTOR	1/10W 820Ω-J	R 2T7	103P401050	CHIP RESISTOR	1/10W 150Ω-J [67C]
R 2G9	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2T8	103P409050	CHIP RESISTOR	1/10W 0Ω
R 2H0	103P476040	CHIP RESISTOR	1/10W 43kΩ-F	R 2T9	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 2H1	103P404030	CHIP RESISTOR	1/10W 33kΩ-J	R 2U0	103P401050	CHIP RESISTOR	1/10W 150Ω-J
R 2H2	103P472040	CHIP RESISTOR	1/10W 910Ω-F	R 2U1	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 2H3	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2U3	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 2H4	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2U4	103P409050	CHIP RESISTOR	1/10W 0Ω
R 2H5	103P473020	CHIP RESISTOR	1/10W 2kΩ-F	R 2V7	103P402010	CHIP RESISTOR	1/10W 470Ω-J
R 2H6	103P471090	CHIP RESISTOR	1/10W 560Ω-F	R 2V9	103P402020	CHIP RESISTOR	1/10W 560Ω-J
R 2H7	103P402020	CHIP RESISTOR	1/10W 560Ω-J	R 2X2	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 2H8	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J	R 2X9	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 2J1	103P402000	CHIP RESISTOR	1/10W 390Ω-J	R 2XA	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 2J2	103P401070	CHIP RESISTOR	1/10W 220Ω-J	R 2XB	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 2J3	103P401060	CHIP RESISTOR	1/10W 180Ω-J	R 2XE	103P401070	CHIP RESISTOR	1/10W 220Ω-J
R 2J4	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2Y0	103P403060	CHIP RESISTOR	1/10W 8.2kΩ-J
R 2J6	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 2Y1	103P402010	CHIP RESISTOR	1/10W 470Ω-J
R 2J7	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J	R 2Y3	103P401080	CHIP RESISTOR	1/10W 270Ω-J

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
R 2Y7	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J	R 3301	103P474080	CHIP RESISTOR	1/10W 9.1kΩ-F
R 2Z0	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 3302	103P474080	CHIP RESISTOR	1/10W 9.1kΩ-F
R 2Z1	103P404050	CHIP RESISTOR	1/10W 47kΩ-J	R 3303	103P475050	CHIP RESISTOR	1/10W 18kΩ-F
R 2001	103P401070	CHIP RESISTOR	1/10W 220Ω-J	R 3304	103P475050	CHIP RESISTOR	1/10W 18kΩ-F
R 2002	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 3305	103P475040	CHIP RESISTOR	1/10W 16kΩ-F
R 2003	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 3306	103P475040	CHIP RESISTOR	1/10W 16kΩ-F
R 2004	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 3307	103P476020	CHIP RESISTOR	1/10W 36kΩ-F
R 2005	103P404030	CHIP RESISTOR	1/10W 33kΩ-J	R 3308	103P476020	CHIP RESISTOR	1/10W 36kΩ-F
R 2006	103P404010	CHIP RESISTOR	1/10W 22kΩ-J	R 3313	103P471080	CHIP RESISTOR	1/10W 510Ω-F
R 2007	103P401070	CHIP RESISTOR	1/10W 220Ω-J	R 3314	103P471080	CHIP RESISTOR	1/10W 510Ω-F
R 2008	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J	R 3315	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J
R 2009	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 3316	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J
R 2010	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J	R 3317	103P406000	CHIP RESISTOR	1/10W 820kΩ-J
R 2012	103P404080	CHIP RESISTOR	1/10W 82kΩ-J	R 3318	103P406000	CHIP RESISTOR	1/10W 820kΩ-J
R 2013	103P402020	CHIP RESISTOR	1/10W 560Ω-J	R 3319	103P475080	CHIP METAL	1/10W 24kΩ-F
R 2014	103P402020	CHIP RESISTOR	1/10W 560Ω-J	R 3320	103P475080	CHIP METAL	1/10W 24kΩ-F
R 2015	103P401070	CHIP RESISTOR	1/10W 220Ω-J	R 3321	103P403090	CHIP RESISTOR	1/10W 15kΩ-J
R 2016	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J	R 3322	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 2017	103P404030	CHIP RESISTOR	1/10W 33kΩ-J	R 3323	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J [67]
R 2018	103P403090	CHIP RESISTOR	1/10W 15kΩ-J	R 3323	103P403020	CHIP RESISTOR	1/10W 3.9kΩ-J [67C]
R 2019	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 3324	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 2020	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 3330	103P403040	CHIP RESISTOR	1/10W 5.6kΩ-J
R 2021	103P401070	CHIP RESISTOR	1/10W 220Ω-J	R 3335	103P404050	CHIP RESISTOR	1/10W 47kΩ-J
R 2022	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J	R 3336	103P403020	CHIP RESISTOR	1/10W 3.9kΩ-J
R 2023	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 3337	103P403080	CHIP RESISTOR	1/10W 12kΩ-J
R 2024	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J	R 3338	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 2025	103P401040	CHIP RESISTOR	1/10W 120Ω-J	R 3339	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 2026	103P401070	CHIP RESISTOR	1/10W 220Ω-J	R 3340	103P404020	CHIP RESISTOR	1/10W 27kΩ-J
R 2027	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J	R 3341	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 2028	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 3342	103P401070	CHIP RESISTOR	1/10W 220Ω-J
R 2029	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J	R 3343	103P403020	CHIP RESISTOR	1/10W 3.9kΩ-J
R 2032	103P401070	CHIP RESISTOR	1/10W 220Ω-J	R 3344	103P403020	CHIP RESISTOR	1/10W 3.9kΩ-J
R 2033	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 3345	103P406050	CHIP RESISTOR	1/10W 2.2MΩ-J
R 2034	103P406010	CHIP RESISTOR	1/10W 1MΩ-J	R 3346	103P403090	CHIP RESISTOR	1/10W 15kΩ-J
R 2035	103P409050	CHIP RESISTOR	1/10W 0Ω	R 3347	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 2036	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J	R 3348	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 3S0	103P477030	CHIP RESISTOR	1/10W 100kΩ-F	R 3349	103P472050	CHIP RESISTOR	1/10W 1kΩ-F
R 3S1	103P403050	CHIP RESISTOR	1/10W 6.8kΩ-J	R 3350	103P409050	CHIP RESISTOR	1/10W 0Ω
R 3S2	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 3351	103P478010	CHIP RESISTOR	1/10W 220kΩ-F
R 3S3	103P405040	CHIP RESISTOR	1/10W 270kΩ-J	R 3352	103P473030	CHIP RESISTOR	1/10W 2.2kΩ-F
R 3S4	103P476050	CHIP RESISTOR	1/10W 47kΩ-F	R 3353	103P471020	CHIP RESISTOR	1/10W 300Ω-F
R 3S5	103P476050	CHIP RESISTOR	1/10W 47kΩ-F	R 3354	103P400010	CHIP RESISTOR	1/10W 10Ω-J
R 3S6	103P476050	CHIP RESISTOR	1/10W 47kΩ-F	R 3355	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 3S7	103P403020	CHIP RESISTOR	1/10W 3.9kΩ-J	R 3356	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 3S8	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J	R 3357	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 3S9	103P406000	CHIP RESISTOR	1/10W 820kΩ-J	R 3358	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 3T0	103P476040	CHIP RESISTOR	1/10W 43kΩ-F	R 3359	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 3T1	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J	R 3360	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 3T2	103P406010	CHIP RESISTOR	1/10W 1MΩ-J	R 3362	103P404050	CHIP RESISTOR	1/10W 47kΩ-J
R 3T3	103P477000	CHIP RESISTOR	1/10W 75kΩ-F	R 3364	103P404050	CHIP RESISTOR	1/10W 47kΩ-J
R 3T6	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J	R 3366	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 3T7	103P402030	CHIP RESISTOR	1/10W 680Ω-J	R 3367	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 3T8	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J	R 3368	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 3T9	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 3370	103P405070	CHIP RESISTOR	1/10W 470kΩ-J
R 3U1	103P403070	CHIP RESISTOR	1/10W 10kΩ-J [67C]	R 3371	103P403090	CHIP RESISTOR	1/10W 15kΩ-J

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
R 3372	103P404000	CHIP RESISTOR	1/10W 18kΩ-J	R 6A7	103P402010	CHIP RESISTOR	1/10W 470Ω-J [67C]
R 3373	103P403060	CHIP RESISTOR	1/10W 8.2kΩ-J	R 6A8	103P402080	CHIP RESISTOR	1/10W 1.8kΩ-J
R 3374	103P402020	CHIP RESISTOR	1/10W 560Ω-J	R 6B0	103P402060	CHIP RESISTOR	1/10W 1.2kΩ-J
R 3375	103P401070	CHIP RESISTOR	1/10W 220Ω-J	R 6B1	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 3376	103P404030	CHIP RESISTOR	1/10W 33kΩ-J	R 6B4	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 3377	103P404010	CHIP RESISTOR	1/10W 22kΩ-J	R 6B5	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 3385	103P403020	CHIP RESISTOR	1/10W 3.9kΩ-J	R 6B6	103P404000	CHIP RESISTOR	1/10W 18kΩ-J
R 3386	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 6B7	103P401060	CHIP RESISTOR	1/10W 180Ω-J
R 3388	103P409050	CHIP RESISTOR	1/10W 0Ω	R 6B8	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 3389	103P403090	CHIP RESISTOR	1/10W 15kΩ-J	R 6B9	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J
R 3391	103P472010	CHIP RESISTOR	1/10W 680Ω-F	R 6C0	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 3392	103P473020	CHIP RESISTOR	1/10W 2kΩ-F	R 6C2	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 3393	103P409050	CHIP RESISTOR	1/10W 0Ω	R 6C3	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J
R 3401	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 6C4	103P409050	CHIP RESISTOR	1/10W 0Ω
R 3402	103P405000	CHIP RESISTOR	1/10W 120kΩ-J	R 6C5	103P409050	CHIP RESISTOR	1/10W 0Ω
R 3403	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 6C6	103P409050	CHIP RESISTOR	1/10W 0Ω
R 3404	103P405000	CHIP RESISTOR	1/10W 120kΩ-J	R 6C7	103P409050	CHIP RESISTOR	1/10W 0Ω
R 3405	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 6C9	103P402080	CHIP RESISTOR	1/10W 1.8kΩ-J
R 3406	103P405000	CHIP RESISTOR	1/10W 120kΩ-J	R 6D2	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J
R 3407	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 6D3	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 3408	103P405000	CHIP RESISTOR	1/10W 120kΩ-J	R 6D4	103P404090	CHIP RESISTOR	1/10W 100kΩ-J
R 3409	103P405020	CHIP RESISTOR	1/10W 180kΩ-J	R 6D5	103P405030	CHIP RESISTOR	1/10W 220kΩ-J
R 3410	103P405020	CHIP RESISTOR	1/10W 180kΩ-J	R 6D6	103P403050	CHIP RESISTOR	1/10W 6.8kΩ-J
R 3411	103P405020	CHIP RESISTOR	1/10W 180kΩ-J	R 6D7	103P401080	CHIP RESISTOR	1/10W 270Ω-J
R 3412	103P405020	CHIP RESISTOR	1/10W 180kΩ-J	R 6E2	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 3413	103P404010	CHIP RESISTOR	1/10W 22kΩ-J	R 6E3	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 3420	103P403040	CHIP RESISTOR	1/10W 5.6kΩ-J	R 6E5	103P403040	CHIP RESISTOR	1/10W 5.6kΩ-J
R 3421	103P403040	CHIP RESISTOR	1/10W 5.6kΩ-J	R 6E6	103P402020	CHIP RESISTOR	1/10W 560Ω-J
R 3430	103P405030	CHIP RESISTOR	1/10W 220kΩ-J	R 6E7	103P401080	CHIP RESISTOR	1/10W 270Ω-J
R 3431	103P405030	CHIP RESISTOR	1/10W 220kΩ-J	R 6E8	103P401090	CHIP RESISTOR	1/10W 330Ω-J
R 3432	103P403060	CHIP RESISTOR	1/10W 8.2kΩ-J	R 6E9	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 3433	103P401030	CHIP RESISTOR	1/10W 100Ω-J	R 6F1	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 3434	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 6F2	103P403020	CHIP RESISTOR	1/10W 3.9kΩ-J
R 3440	103P404030	CHIP RESISTOR	1/10W 33kΩ-J	R 6F3	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 3441	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 6G0	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 3443	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 6G1	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J
R 3444	103P404000	CHIP RESISTOR	1/10W 18kΩ-J	R 6G2	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 3445	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 6G3	103P403040	CHIP RESISTOR	1/10W 5.6kΩ-J
R 3446	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 6G7	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J
R 3447	103P403000	CHIP RESISTOR	1/10W 2.7kΩ-J	R 6H1	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 3448	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 6H2	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 3452	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J	R 6H3	103P401070	CHIP RESISTOR	1/10W 220Ω-J
R 3453	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J	R 6H4	103P402040	CHIP RESISTOR	1/10W 820Ω-J
R 3454	103P404090	CHIP RESISTOR	1/10W 100kΩ-J	R 6H5	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 3460	103P403060	CHIP RESISTOR	1/10W 8.2kΩ-J	R 6H6	103P403040	CHIP RESISTOR	1/10W 5.6kΩ-J [67C]
R 3A04	103P401090	CHIP RESISTOR	1/10W 330Ω-J	R 6H6	103P408090	CHIP RESISTOR	1/10W 5.6Ω-K [67C]
R 3A05	103P401090	CHIP RESISTOR	1/10W 330Ω-J	R 6H7	103P409050	CHIP RESISTOR	1/10W 0Ω [67C]
R 3A06	103P401090	CHIP RESISTOR	1/10W 330Ω-J	R 6H8	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 3A07	103P401090	CHIP RESISTOR	1/10W 330Ω-J	R 6Y1	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 6A0	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 6Y4	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 6A2	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 7A0	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 6A3	103P404020	CHIP RESISTOR	1/10W 27kΩ-J	R 7A1	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 6A4	103P404000	CHIP RESISTOR	1/10W 18kΩ-J	R 7A2	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 6A5	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 7A4	103P404090	CHIP RESISTOR	1/10W 100kΩ-J
R 6A7	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 7A5	103P404080	CHIP RESISTOR	1/10W 82kΩ-J

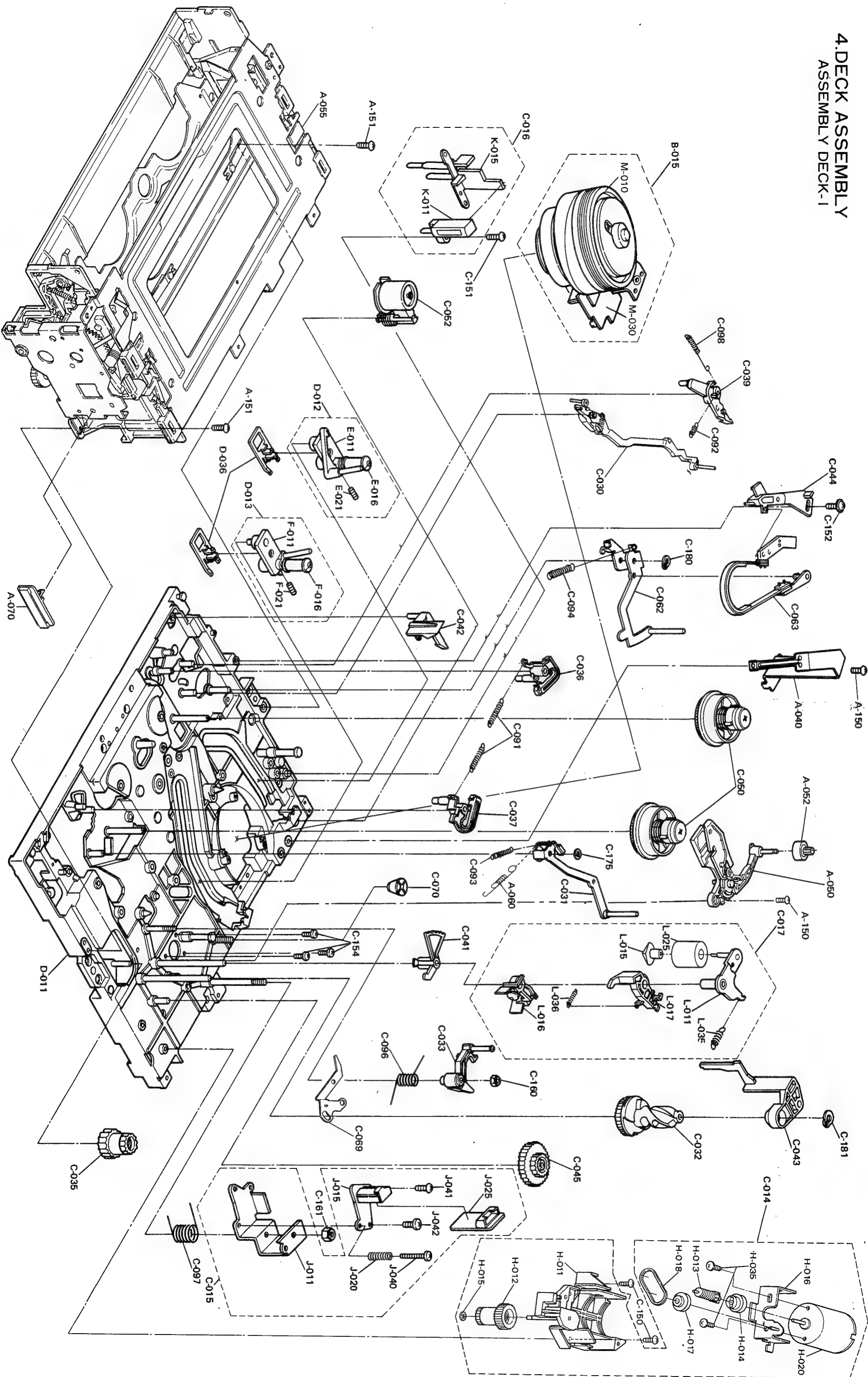
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SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION		SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
RJ235	103P409050	CHIP RESISTOR	1/10W 0Ω		C 242	154P330060	CHIP CAPACITOR	CH50V 5pF-C
RJ236	103P409050	CHIP RESISTOR	1/10W 0Ω		C 251	141P131020	CHIP CAPACITOR	B50V 1800pF-K
RJ237	103P409050	CHIP RESISTOR	1/10W 0Ω		C 252	154P324000	CHIP CAPACITOR	SL50V 150pF-J
RJ238	103P409050	CHIP RESISTOR	1/10W 0Ω		C 263	141P132010	CHIP CAPACITOR	B50V 0.01 μF-K
					C 266	141P132010	CHIP CAPACITOR	B50V 0.01 μF-K
RJ239	103P409050	CHIP RESISTOR	1/10W 0Ω		C 272	141P135080	CHIP CAPACITOR	F25V 0.1 μF-Z
RJ240	103P409050	CHIP RESISTOR	1/10W 0Ω		C 273	141P135080	CHIP CAPACITOR	F25V 0.1 μF-Z
RJ241	103P409050	CHIP RESISTOR	1/10W 0Ω		C 293	141P132010	CHIP CAPACITOR	B50V 0.01 μF-K
RJ242	103P409050	CHIP RESISTOR	1/10W 0Ω		C 2A1	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
RJ243	103P409050	CHIP RESISTOR	1/10W 0Ω		C 2A5	154P322080	CHIP CAPACITOR	SL50V 47pF-J
					C 2A6	154P322000	CHIP CAPACITOR	SL50V 22pF-J
RJ244	103P409050	CHIP RESISTOR	1/10W 0Ω		C 2A7	154P323060	CHIP CAPACITOR	SL50V 100pF-J
RJ245	103P409050	CHIP RESISTOR	1/10W 0Ω		C 2A9	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
RJ246	103P409050	CHIP RESISTOR	1/10W 0Ω	[67C]	C 2AD	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
RJ247	103P409050	CHIP RESISTOR	1/10W 0Ω	[67C]	C 2AE	154P322020	CHIP CAPACITOR	SL50V 27pF-J
RJ248	103P409050	CHIP RESISTOR	1/10W 0Ω	[67C]				
CAPACITORS AND TRIMMERS					C 2AF	154P323040	CHIP CAPACITOR	SL50V 82pF-J
C 106	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z		C 2AJ	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 108	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z		C 2AK	154P322000	CHIP CAPACITOR	SL50V 22pF-J
C 109	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z		C 2AL	154P322040	CHIP CAPACITOR	SL50V 33pF-J
C 110	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z		C 2AP	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 112	154P333030	CHIP CAPACITOR	CH50V 82pF-J					
					C 2AR	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 121	154P331010	CHIP CAPACITOR	CH50V 10pF-C		C 2AT	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 122	154P323020	CHIP CAPACITOR	SL50V 68pF-J		C 2B1	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 152	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z		C 2B3	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 153	154P332070	CHIP CAPACITOR	CH50V 47pF-J		C 2B4	154P324000	CHIP CAPACITOR	SL50V 150pF-J
C 154	154P323000	CHIP CAPACITOR	SL50V 56pF-J					
					C 2B5	154P324020	CHIP CAPACITOR	SL50V 180pF-J
C 201	141P130090	CHIP CAPACITOR	B50V 1000pF-K		C 2B6	154P325020	CHIP CAPACITOR	SL50V 470pF-J
C 203	154P331050	CHIP CAPACITOR	CH50V 15pF-J		C 2B7	154P323020	CHIP CAPACITOR	SL50V 68pF-J
C 204	141P135080	CHIP CAPACITOR	F25V 0.1 μF-Z		C 2B8	154P320040	CHIP CAPACITOR	SL50V 2pF-C
C 205	154P330080	CHIP CAPACITOR	CH50V 7pF-C		C 2B9	141P134010	CHIP CAPACITOR	F50V 0.047 μF-Z
C 206	141P135080	CHIP CAPACITOR	F25V 0.1 μF-Z					
					C 2C0	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 207	154P330050	CHIP CAPACITOR	CH50V 4pF-C		C 2C1	154P323000	CHIP CAPACITOR	SL50V 56pF-J
C 209	154P331050	CHIP CAPACITOR	CH50V 15pF-J		C 2C3	141P135080	CHIP CAPACITOR	F25V 0.1 μF-Z
C 211	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z		C 2C5	154P322080	CHIP CAPACITOR	SL50V 47pF-J
C 213	154P331010	CHIP CAPACITOR	CH50V 10pF-C		C 2C6	154P324080	CHIP CAPACITOR	SL50V 330pF-J
C 214	141P135080	CHIP CAPACITOR	F25V 0.1 μF-Z					
					C 2C7	154P324040	CHIP CAPACITOR	SL50V 220pF-J
C 215	141P135080	CHIP CAPACITOR	F25V 0.1 μF-Z		C 2D0	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 217	154P331010	CHIP CAPACITOR	CH50V 10pF-C		C 2D8	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 218	141P135080	CHIP CAPACITOR	F25V 0.1 μF-Z		C 2F1	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 219	141P130090	CHIP CAPACITOR	B50V 1000pF-K		C 2F2	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 220	141P135080	CHIP CAPACITOR	F25V 0.1 μF-Z					
					C 2F4	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 222	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z		C 2F5	154P324000	CHIP CAPACITOR	SL50V 150pF-J
C 223	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z		C 2G0	154P321080	CHIP CAPACITOR	SL50V 18pF-J
C 224	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z		C 2G7	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 225	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z		C 2G9	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 226	141P130090	CHIP CAPACITOR	B50V 1000pF-K					
					C 2H0	154P322060	CHIP CAPACITOR	SL50V 39pF-J
C 227	141P130090	CHIP CAPACITOR	B50V 1000pF-K		C 2H1	154P322020	CHIP CAPACITOR	SL50V 27pF-J
C 228	141P132010	CHIP CAPACITOR	B50V 0.01 μF-K		C 2H2	154P321020	CHIP CAPACITOR	SL50V 10pF-C
C 229	141P132010	CHIP CAPACITOR	B50V 0.01 μF-K		C 2H3	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 230	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z		C 2H4	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 231	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z					
					C 2H5	154P321000	CHIP CAPACITOR	SL50V 8pF-C
C 232	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z		C 2H6	154P322040	CHIP CAPACITOR	SL50V 33pF-J
C 234	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z		C 2H7	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 236	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z		C 2H8	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 237	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z		C 2H9	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
C 238	154P321060	CHIP CAPACITOR	SL50V 15pF-J					

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
C 2J0	154P322000	CHIP CAPACITOR	SL50V 22pF-J	C 3347	141P130060	CHIP CAPACITOR	B50V 560pF-K
C 2J1	154P324040	CHIP CAPACITOR	SL50V 220pF-J	C 3352	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2J2	154P321040	CHIP CAPACITOR	SL50V 12pF-J	C 3368	154P326000	CHIP CAPACITOR	SL50V 1000pF-J
C 2J3	154P324000	CHIP CAPACITOR	SL50V 150pF-J	C 3375	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2J5	154P325020	CHIP CAPACITOR	SL50V 470pF-J	C 3387	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2J6	154P325020	CHIP CAPACITOR	SL50V 470pF-J	C 3388	141P130090	CHIP CAPACITOR	B50V 1000pF-K
C 2J9	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 3389	141P130060	CHIP CAPACITOR	B50V 560pF-K
C 2K0	154P321040	CHIP CAPACITOR	SL50V 12pF-J	C 3410	141P132030	CHIP CAPACITOR	B50V 0.015 μ F-K
C 2K2	154P320090	CHIP CAPACITOR	SL50V 7pF-C [67]	C 3411	141P131070	CHIP CAPACITOR	B50V 4700pF-K
C 2K2	154P332070	CHIP CAPACITOR	CH50V 47pF-J [67C]	C 3412	141P139030	CHIP CAPACITOR	B25V 0.1 μ F-K
C 2M1	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 3414	141P139030	CHIP CAPACITOR	B25V 0.1 μ F-K
C 2M2	141P135080	CHIP CAPACITOR	F25V 0.1 μ F-Z	C 3416	141P132010	CHIP CAPACITOR	B50V 0.01 μ F-K
C 2M3	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 3417	141P132010	CHIP CAPACITOR	B50V 0.01 μ F-K
C 2M4	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 3418	141P132010	CHIP CAPACITOR	B50V 0.01 μ F-K
C 2M7	141P135080	CHIP CAPACITOR	F25V 0.1 μ F-Z	C 3419	141P132010	CHIP CAPACITOR	B50V 0.01 μ F-K
C 2M8	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 3A01	154P326000	CHIP CAPACITOR	SL50V 1000pF-J
C 2M9	154P322060	CHIP CAPACITOR	SL50V 39pF-J	C 3A02	154P326000	CHIP CAPACITOR	SL50V 1000pF-J
C 2N0	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 3A03	154P326000	CHIP CAPACITOR	SL50V 1000pF-J
C 2N1	154P324020	CHIP CAPACITOR	SL50V 180pF-J	C 3A04	154P326000	CHIP CAPACITOR	SL50V 1000pF-J
C 2N2	154P324060	CHIP CAPACITOR	SL50V 270pF-J	C 5A0	189P197020	C-ELE-DBL-LAYER	AC310G473Z5R5
C 2N7	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 6A2	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2N8	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 6A4	154P324000	CHIP CAPACITOR	SL50V 150pF-J
C 2N9	154P324040	CHIP CAPACITOR	SL50V 220pF-J	C 6A5	154P324000	CHIP CAPACITOR	SL50V 150pF-J
C 2P0	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 6A6	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2T0	154P322020	CHIP CAPACITOR	SL50V 27pF-J	C 6A8	141P131030	CHIP CAPACITOR	B50V 2200pF-K [67C]
C 2V0	154P324080	CHIP CAPACITOR	SL50V 330pF-J	C 6B1	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2V2	154P322060	CHIP CAPACITOR	SL50V 39pF-J	C 6B2	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2002	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 6B5	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2003	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 6B6	154P322020	CHIP CAPACITOR	SL50V 27pF-J
C 2004	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 6C0	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2006	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 6C3	154P323060	CHIP CAPACITOR	SL50V 100pF-J
C 2007	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 6C4	154P323080	CHIP CAPACITOR	SL50V 120pF-J
C 2009	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 6C7	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2010	154P323000	CHIP CAPACITOR	SL50V 56pF-J	C 6C8	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2011	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 6D1	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2012	154P323000	CHIP CAPACITOR	SL50V 56pF-J	C 6D3	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2013	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 6D4	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2016	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 6D5	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2018	154P322000	CHIP CAPACITOR	SL50V 22pF-J	C 6D6	154P324040	CHIP CAPACITOR	SL50V 220pF-J
C 2019	154P322080	CHIP CAPACITOR	SL50V 47pF-J	C 6D7	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2021	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 6D8	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2022	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 6D9	154P323080	CHIP CAPACITOR	SL50V 120pF-J
C 2025	154P326000	CHIP CAPACITOR	SL50V 1000pF-J	C 6E1	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2027	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 6E2	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2028	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 6E4	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2029	154P322020	CHIP CAPACITOR	SL50V 27pF-J	C 6E5	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 3S1	141P132000	CHIP CAPACITOR	B50V 8200pF-K	C 6F0	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 3T7	141P131080	CHIP CAPACITOR	B50V 5600pF-K	C 6G0	154P321080	CHIP CAPACITOR	SL50V 18pF-J
C 3T8	141P135080	CHIP CAPACITOR	F25V 0.1 μ F-Z	C 6G1	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 3T9	141P131080	CHIP CAPACITOR	B50V 5600pF-K	C 6H2	154P323060	CHIP CAPACITOR	SL50V 100pF-J
C 3U0	154P325020	CHIP CAPACITOR	SL50V 470pF-J	C 6H5	154P323040	CHIP CAPACITOR	SL50V 82pF-J
C 3325	154P324040	CHIP CAPACITOR	SL50V 220pF-J	C 6H6	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 3326	154P324040	CHIP CAPACITOR	SL50V 220pF-J	C 6H7	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 3329	141P132010	CHIP CAPACITOR	B50V 0.01 μ F-K	C 6H8	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 3330	141P132010	CHIP CAPACITOR	B50V 0.01 μ F-K	C 6H9	154P330090	CHIP CAPACITOR	CH50V 8pF-C [67C]

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
C 6J1	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	J 8A1	451C081010	MINIATURE JACK	
C 6J2	154P330060	CHIP CAPACITOR	CH50V 5pF-C	K 3301	287P020050	RELAY	MZ9HS-B
C 7A1	141P132020	CHIP CAPACITOR	B50V 0.012 μ F-K	M 470	288P118010	CAPSTAN MOTOR	F20KB76
R J158	141P132010	CHIP CAPACITOR	B50V 0.01M Ω -K	M 570	288P088040	DRUM MOTOR	
VC501	202P109040	TRIMMER CAPACITOR	7.3pF-45pF	M 571	288D025010	LOADING MOTOR	
VC8A0	202P109020	TRIMMER CAPACITOR	4.2pF-20pF	WK CK	243C050070	CARD LEAD	27P L120 (TK-CK)
SWITCHES				SK YK	243C050080	CARD LEAD	23P L=80
S 703	432D110040	KEY BOARD SWITCH	POWER	SL ML	243C020060	CARD LEAD	(SL-ML)
S 704	432D110040	KEY BOARD SWITCH	EJECT	SY YY	243C050080	CARD LEAD	11P L=110
S 801	432D110040	KEY BOARD SWITCH	CH-UP	T 370	460P060050	HEAD	
S 802	432D110040	KEY BOARD SWITCH	CH-DOWN	T 371	460P055030	FE HEAD	
S 803	432D110040	KEY BOARD SWITCH	ONEKEY	TU 01	295P269010	TUNER	ET-43ZVPL
S 804	432D110040	KEY BOARD SWITCH	S-OTR	V 8A0	253P077050	TUBE FLUOR	BJ-074GK
S 805	432D110040	KEY BOARD SWITCH	OTR	X 501	285P123010	CRYSTAL RESONATOR	14.318MHz
S 806	432D110040	KEY BOARD SWITCH	SP/EP	X 6A0	285P074010	CRYSTAL RESONATOR	3.5795MHz
S 807	432D110040	KEY BOARD SWITCH	REC	X 8A0	285P063040	CRYSTAL RESONATOR	4.19430MHz
S 808	432D110040	KEY BOARD SWITCH	STILL/PAUSE	X 8A1	285P054010	CRYSTAL RESONATOR	32.768kHz
S 809	432D110040	KEY BOARD SWITCH	INPUT	Z 8A0	939P241020	PREAMP UNIT	GP1U523X
S 810	432D110040	KEY BOARD SWITCH	V-DUB	PRINTED CIRCUIT BOARD ASSY'S			
S 811	432D110040	KEY BOARD SWITCH	STOP	927B618001	CONTROL PCB ASSY		
S 812	432P100040	KEY BOARD SWITCH	A-MTR	928C595002	DECK PCB ASSY		
S 812	432D110040	KEY BOARD SWITCH	A-MTR	928B938014	HEAD-AMP PCB ASSY		
S 813	432P100040	KEY BOARD SWITCH	DISPLAY	928C796001	JACK PCB ASSY		
S 814	432D110040	KEY BOARD SWITCH	FF	927B620001	OPE PCB ASSY		
S 815	432P100040	KEY BOARD SWITCH	ANT	927B495002	POWER PCB ASSY		
S 816	432D110040	KEY BOARD SWITCH	A-DUB	927B616001	SIGNAL PCB ASSY		
S 817	432D110040	KEY BOARD SWITCH	PLAY	927B619001	TIMER PCB ASSY		
S 818	432D110040	KEY BOARD SWITCH	REW	927B617001	Y PCB ASSY		
S 821	432D110040	KEY BOARD SWITCH	RESET				
S 8A0	431C079020	SLIDE SWITCH	REM				
S 8A1	431C079020	SLIDE SWITCH	MIX Hi-Fi/NOR				
SW570	439P019010	MODE SELECT SWITCH					
SW571	439P020010	LIMIT SWITCH	SPPB-62				
SW572	439P020020	LIMIT SWITCH	SPPB-51				
MISCELLANEOUS							
CB SB	242D212020	IF CABLE	RCA(L)-(L) L=220				
CG SG	243C023070	CARD LEAD	19P				
CH SH	243C022080	CARD LEAD	(TL-SL)				
CU 01	243C050050	CARD LEAD	15P L170 (TL-SL)				
	295P283010	CONVERTER SW	MDF33-VA3474				
CZ PZ	243C073010	CARD LEAD	9P L=130 (MX-PX)				
DC CC	243C061020	CARD LEAD	9P L=150 (DC-CC)				
DM CM	243C061080	CARD LEAD	17P L=120				
F 901	283D038010	FUSE	S1A				
F 902	283D038060	FUSE	S2A				
J 2A0	449C095010	SOCKET DIN MINI	4PIN				
J 2A1	440C220010	PIN JACK (4P)	JACK X4				
J 2B0	440C175040	PIN JACK (4P)	AU-MEKKI				
J 2B1	451C096020	PIN JACK	YELLOW				
J 2Z1	451C117010	HEADPHONE JACK	BLACK				
J 2Z2	451C117010	HEADPHONE JACK	BLACK				
J 2Z3	451C105090	PIN JACK	BLACK (NI)				

4.DECK ASSEMBLY
ASSEMBLY DECK-I



A

B

C

D

E

F

G

H

I

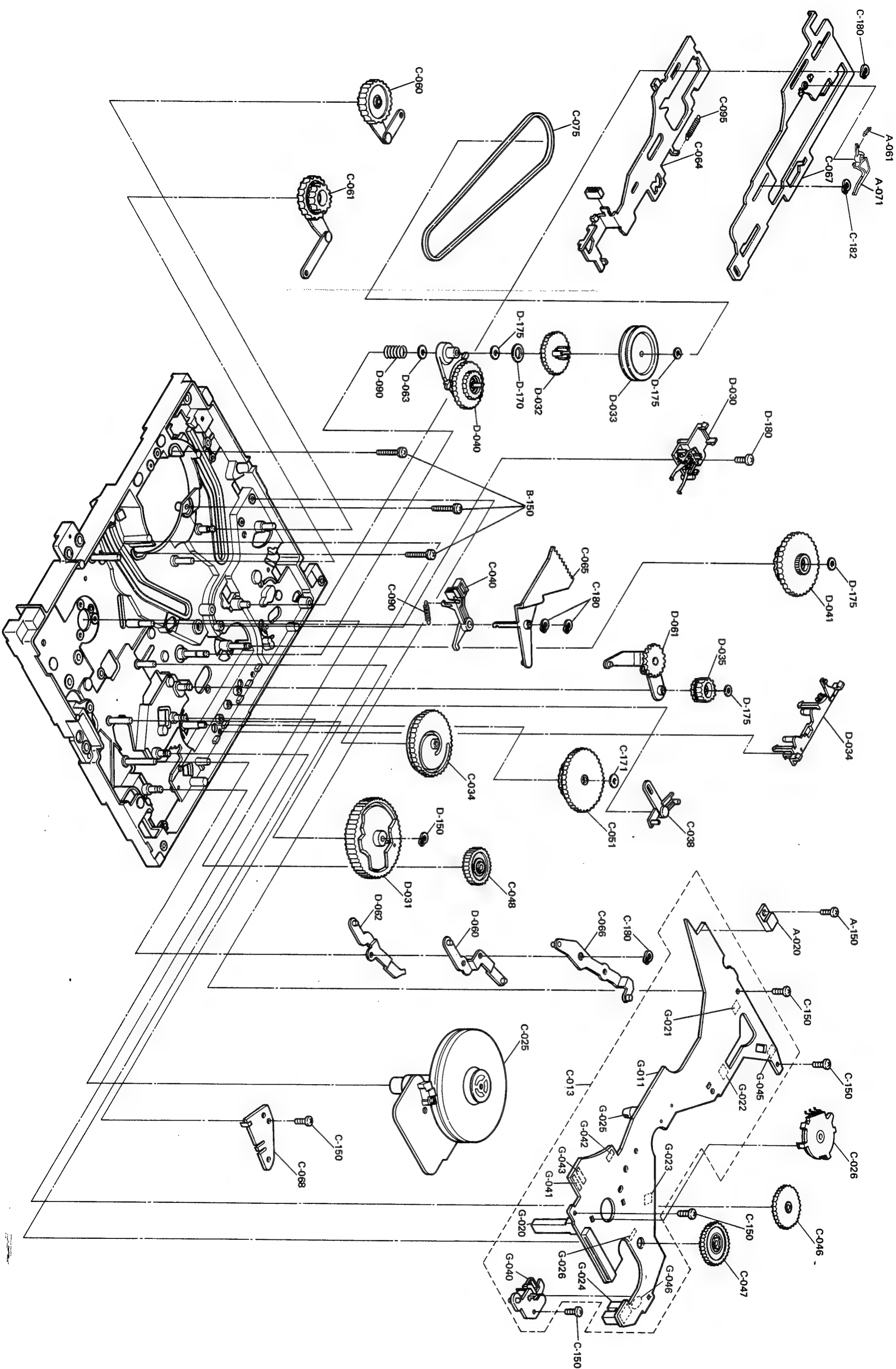
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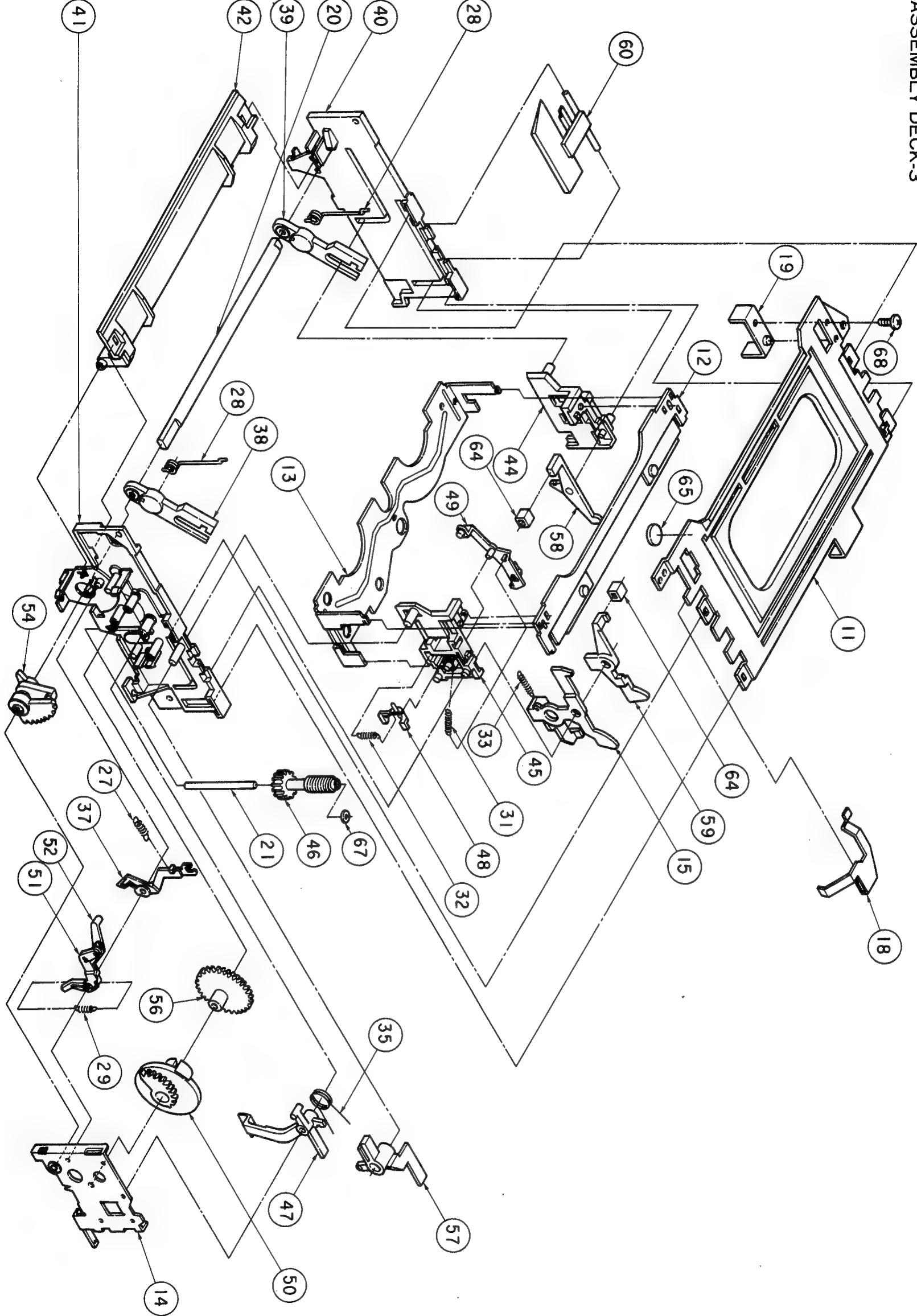
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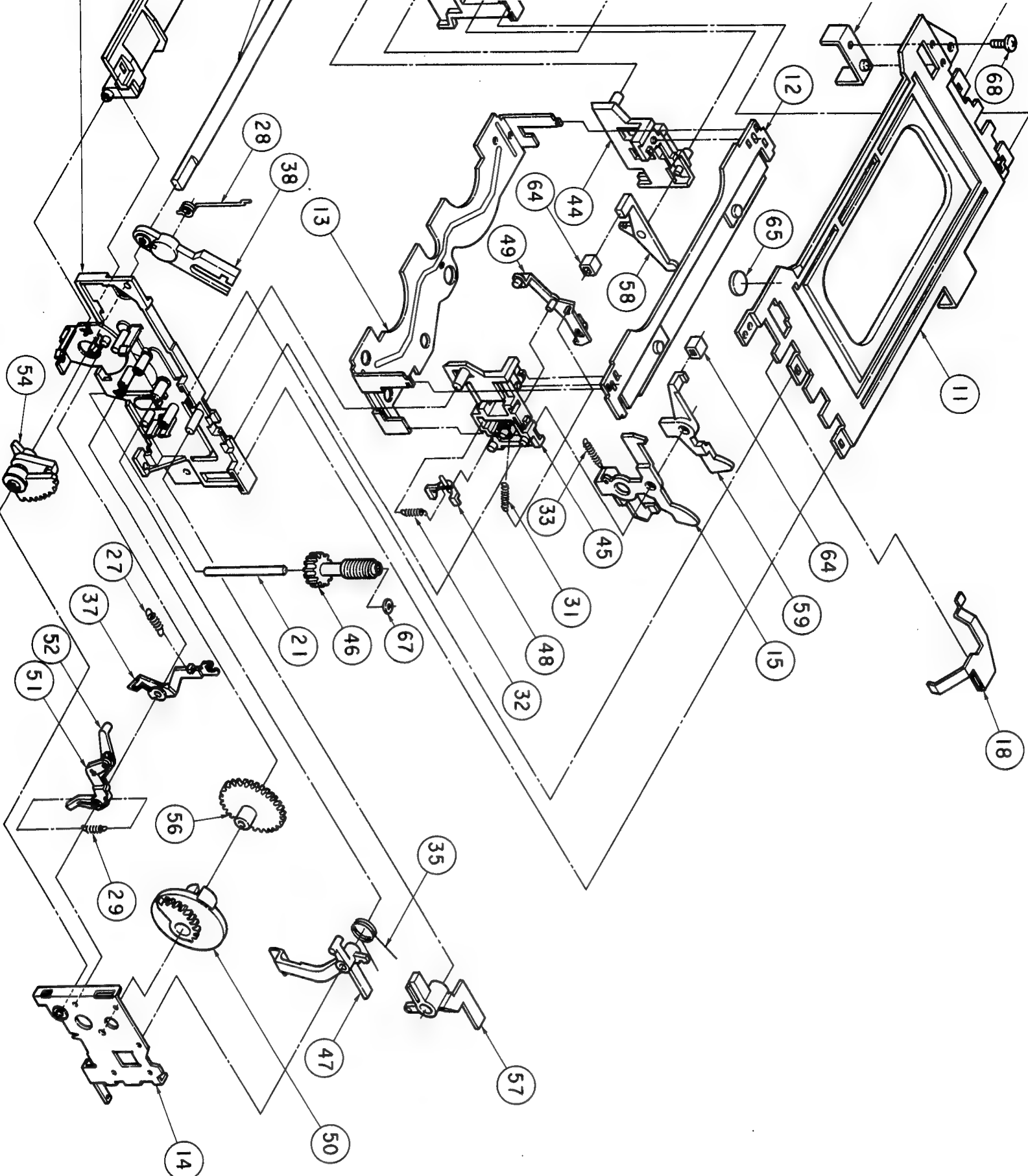
ASSEMBLY DECK-2



ASSEMBLY DECK-3



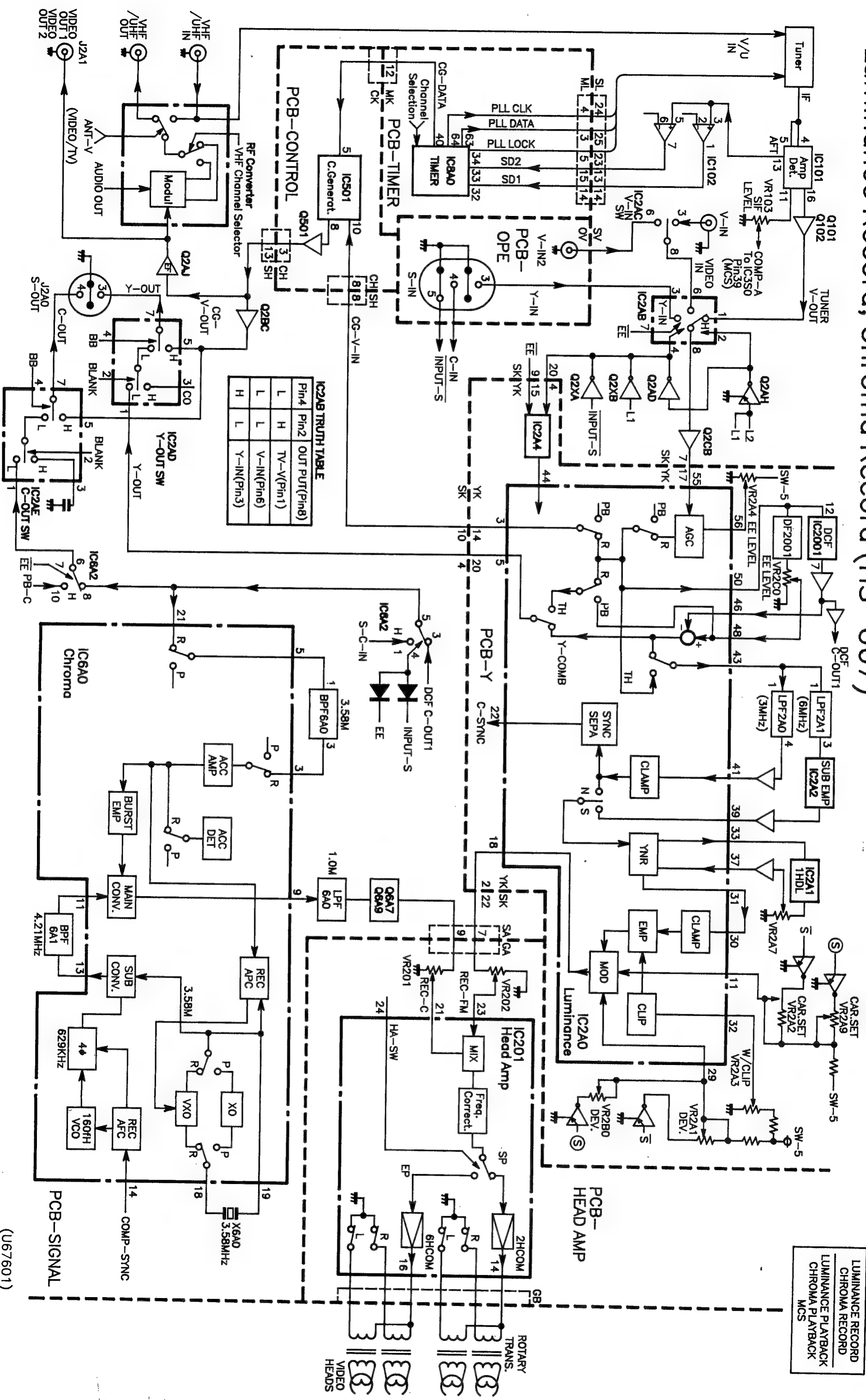
* Settelled Service Parts			
ITEM	PARTS No.	* ADDREC	
11	591B545010	F-2	
12	593C001010	D-3	
13	591B546010	E-7	
14	591B542010	K-8	
15	592C851010	H-3	
18	596D150010	H-2	
19	596D217010	C-3	
20	631D134010	A-6	
21	631D135010	H-7	
27	(not used)		
28	572D301010	A-5	
29	572D389010	J-8	
31	572D304010	G-5	
32	572D305010	H-5	
33	572D380010	G-5	
35	572D367010	I-6	
37	(not used)		
38	641B315010	A-7	
39	641B315020	D-7	
40	641A110010	A-6	
41	641A109010	A-8	
42	641B306010	A-7	
44	641B309010	D-5	
45	641B307010	G-5	
46	621D513010	H-6	
47	621D514010	K-7	
48	621D515010	H-5	
49	641C794010	E-5	
50	641C793010	K-7	
51	641C897010	H-9	
52	641C898010	H-9	
54	641C858010	F-9	
56	641C814010	I-8	
57	641C857010	K-5	
58	621D585010	E-4	
59	621D586010	G-3	
60	641C878010	A-4	
64	642D494010	D-5	
65	(not used)		
67	552C003040	H-6	
68	-----	D-2	



* Settled Service Parts

ITEM	PARTS No.	* ADDRESS	PARTS NAME	DESCRIPTION	Qt.
11	591B545010	F-2	PLATE-R00F		01
12	593C001010	D-3	PLATE-UPPER-P		01
13	591B546010	E-7	PLATE-BOTTOM		01
14	591B542010	K-8	PLATE-SIDE-TU		01
15	592C851010	H-3	LEVER-LOCK-FL		01
18	596D150010	H-2	PLATE-EARTH		01
19	596D217010	C-3	PLATE-GUARD		01
20	631D134010	A-6	SHAFT-FL		01
21	631D135010	H-7	SHAFT-WORM		01
27	(not used)				
28	572D301010	A-5	SPRING-FL		02
29	572D389010	J-8	SPRING-DOOR-SUB		01
31	572D304010	G-5	SPRING-OPENER-LID		01
32	572D305010	H-5	SPRING-JUT-FL		01
33	572D380010	G-5	SPRING-LEVER-LOCK		01
35	572D367010	I-6	SPRING-LEVER-SW		01
37	(not used)				
38	641B315010	A-7	ARM-FL		01
39	641B315020	D-7	ARM-FL		01
40	641A110010	A-6	HOLDER-SIDE-SP		01
41	641A109010	A-8	HOLDER-SIDE-TU		01
42	641B306010	A-7	GUIDE-INSERT		01
44	641B309010	D-5	HOUSING-CASSETTE-SP		01
45	641B307010	G-5	HOUSING-CASSETTE-TU		01
46	621D513010	H-6	GEAR-WORM-FL		01
47	621D514010	K-7	LEVER-SW-FL		01
48	621D515010	H-5	JUT		01
49	641C794010	E-5	OPENER-LID-CAS		01
50	641C793010	K-7	GEAR-DRIVE		01
51	641C897010	H-9	ARM-FL-DOOR-A		01
52	641C898010	H-9	ARM-FL-DOOR-B		01
54	641C858010	F-9	ARM-LOCK		01
56	641C814010	I-8	GEAR-W-H-F/L		01
57	641C857010	K-5	LEVER-PICK-CAS		01
58	621D585010	E-4	LEVER-CAS-SP		01
59	621D586010	G-3	LEVER-CAS-TU		01
60	641C878010	A-4	STOPPER-SP-FL		01
64	642D494010	D-5	RUBBER-FL		02
65	(not used)				
67	552C003040	H-6	WASHER-THRUST		01
68	-----	D-2	SCREW		01

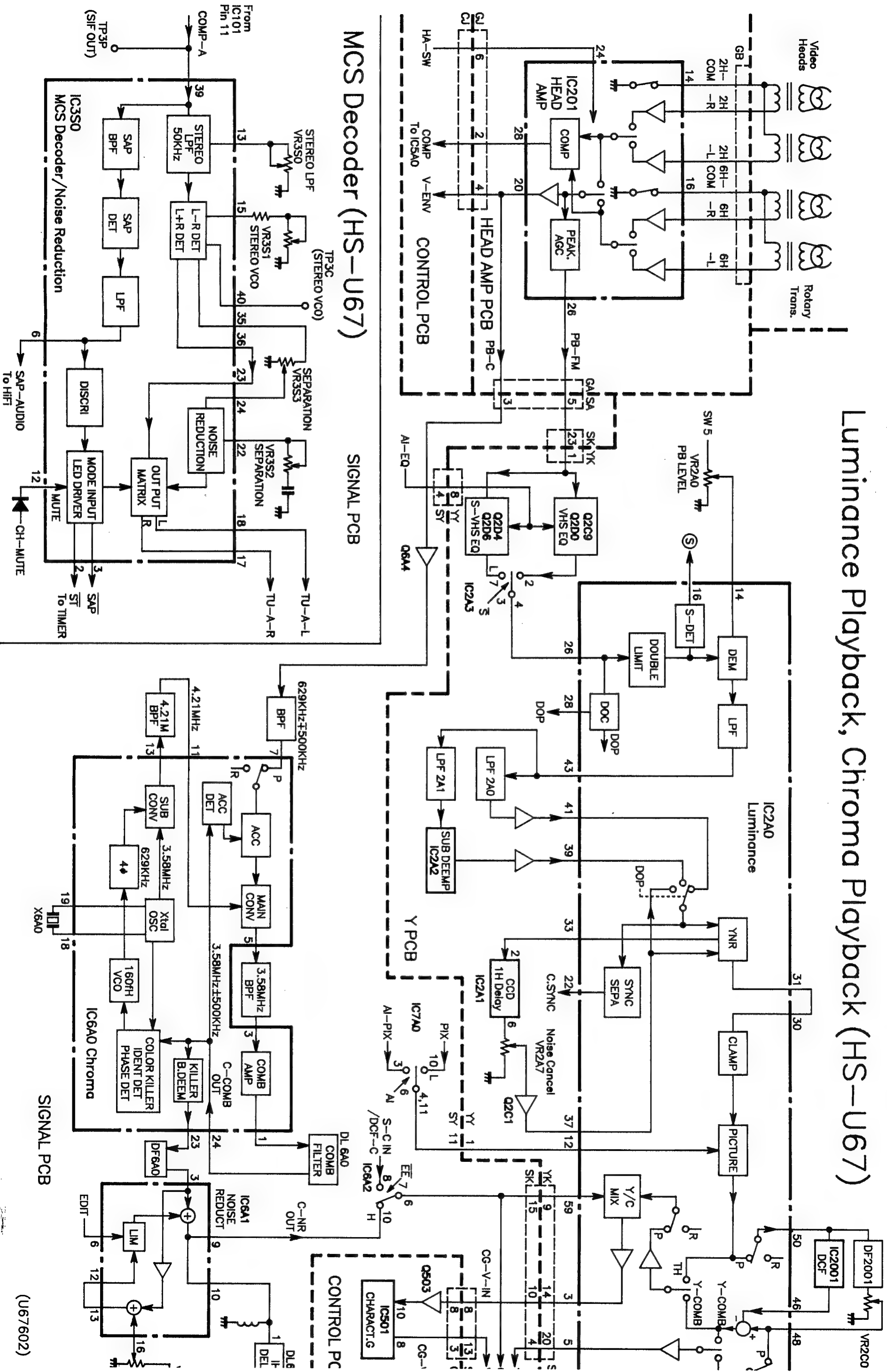
Luminance Record, Chroma Record (HS-U67)



**LUMINANCE RECORD
CHROMA RECORD**

**LUMINANCE PLAYBACK
CHROMA PLAYBACK**

Luminance Playback, Chroma Playback (HS-U67)



The schematic diagram illustrates the video section of a color television receiver, showing the signal path from the video heads through various integrated circuits (ICs) and components to the video output.

Video Heads and Rotary Transducers: The input signals are received from the Video Heads (2H, 6H, -L, -R) and Rotary Transducers (2H, 6H, -L, -R). These signals are connected to the GB, 2H, 6H, -L, -R, and COM pins of the IC201.

IC201: Video Head Amp: This IC processes the input signals. Its pins include 14, 16, 20, 24, 26, 28, and 30. It is connected to the HEAD AMP PCB (PB-C) and the CONTROL PCB (PB-FM).

IC202: Video Amp: This IC is connected to the HEAD AMP PCB (PB-C) and the CONTROL PCB (PB-FM). Its pins include 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.

IC203: Video Amp: This IC is connected to the HEAD AMP PCB (PB-C) and the CONTROL PCB (PB-FM). Its pins include 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.

IC204: Video Amp: This IC is connected to the HEAD AMP PCB (PB-C) and the CONTROL PCB (PB-FM). Its pins include 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.

IC205: Video Amp: This IC is connected to the HEAD AMP PCB (PB-C) and the CONTROL PCB (PB-FM). Its pins include 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.

IC206: Video Amp: This IC is connected to the HEAD AMP PCB (PB-C) and the CONTROL PCB (PB-FM). Its pins include 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.

IC207: Video Amp: This IC is connected to the HEAD AMP PCB (PB-C) and the CONTROL PCB (PB-FM). Its pins include 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.

IC208: Video Amp: This IC is connected to the HEAD AMP PCB (PB-C) and the CONTROL PCB (PB-FM). Its pins include 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.

IC209: Video Amp: This IC is connected to the HEAD AMP PCB (PB-C) and the CONTROL PCB (PB-FM). Its pins include 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.

IC210: Video Amp: This IC is connected to the HEAD AMP PCB (PB-C) and the CONTROL PCB (PB-FM). Its pins include 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.

IC211: Video Amp: This IC is connected to the HEAD AMP PCB (PB-C) and the CONTROL PCB (PB-FM). Its pins include 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.

IC212: Video Amp: This IC is connected to the HEAD AMP PCB (PB-C) and the CONTROL PCB (PB-FM). Its pins include 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.

IC213: Video Amp: This IC is connected to the HEAD AMP PCB (PB-C) and the CONTROL PCB (PB-FM). Its pins include 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.

IC214: Video Amp: This IC is connected to the HEAD AMP PCB (PB-C) and the CONTROL PCB (PB-FM). Its pins include 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.

IC215: Video Amp: This IC is connected to the HEAD AMP PCB (PB-C) and the CONTROL PCB (PB-FM). Its pins include 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.

IC216: Video Amp: This IC is connected to the HEAD AMP PCB (PB-C) and the CONTROL PCB

The schematic diagram illustrates the internal architecture of the IC350 MCS Decoder/Noise Reduction circuit. The circuit is powered by a 10V supply. Key components and connections include:

- Inputs and Outputs:**
 - TP3C (STEREO VCO):** Connected to pin 40.
 - TP3P (SIF OUT):** Connected to pin 39.
 - COMPA-A:** Connected to pin 11.
 - TU-A-L and TU-A-R:** Outputs from the OUT PUT MATRIX.
 - SAP and ST:** Outputs from the MODE INPUT LED DRIVER.
 - CH-MUTE:** Output from the MUTE pin (12).
- Internal Blocks:**
 - STEREO LPF (50KHz):** Processes the stereo signal.
 - L-R DET and L+R DET:** Detect and process stereo and mono signals.
 - SAP BPF and SAP DET:** Process the SAP (Stereo Audio Processing) signal.
 - LPF:** Low-pass filter for the SAP signal.
 - DISCRI:** Discriminator for the SAP signal.
 - MODE INPUT LED DRIVER:** Controls the LED driver based on the SAP signal.
 - NOISE REDUCTION:** Reduces noise in the audio signal.
 - OUT PUT MATRIX:** Routes the processed signals to the final outputs.
- External Components:**
 - VR350, VR351, VR352, VR353:** Variable resistors used for tuning and adjustment.
 - Capacitors:** Various capacitors are used for filtering and timing.

629KHz±500KHz

BPF

7

P

ACC

MAIN CONV

5

3.58MHz BPF

3

COMB AMP

1

3.58MHz±500KHz

C-COMB OUT

24

4.21MHz

11

4.21MHz BPF

13

SUB CONV

3.58MHz

4

Xtal OSC

160ft VCO

IC6A0 Chroma

COLOR KILLER IDENT DET PHASE DET

B. DEEM

23

DF6A0

3

IC6A1 NOISE REDUCT

9

10

1

DL6A1 DELAY

2

VR6A0

16

12

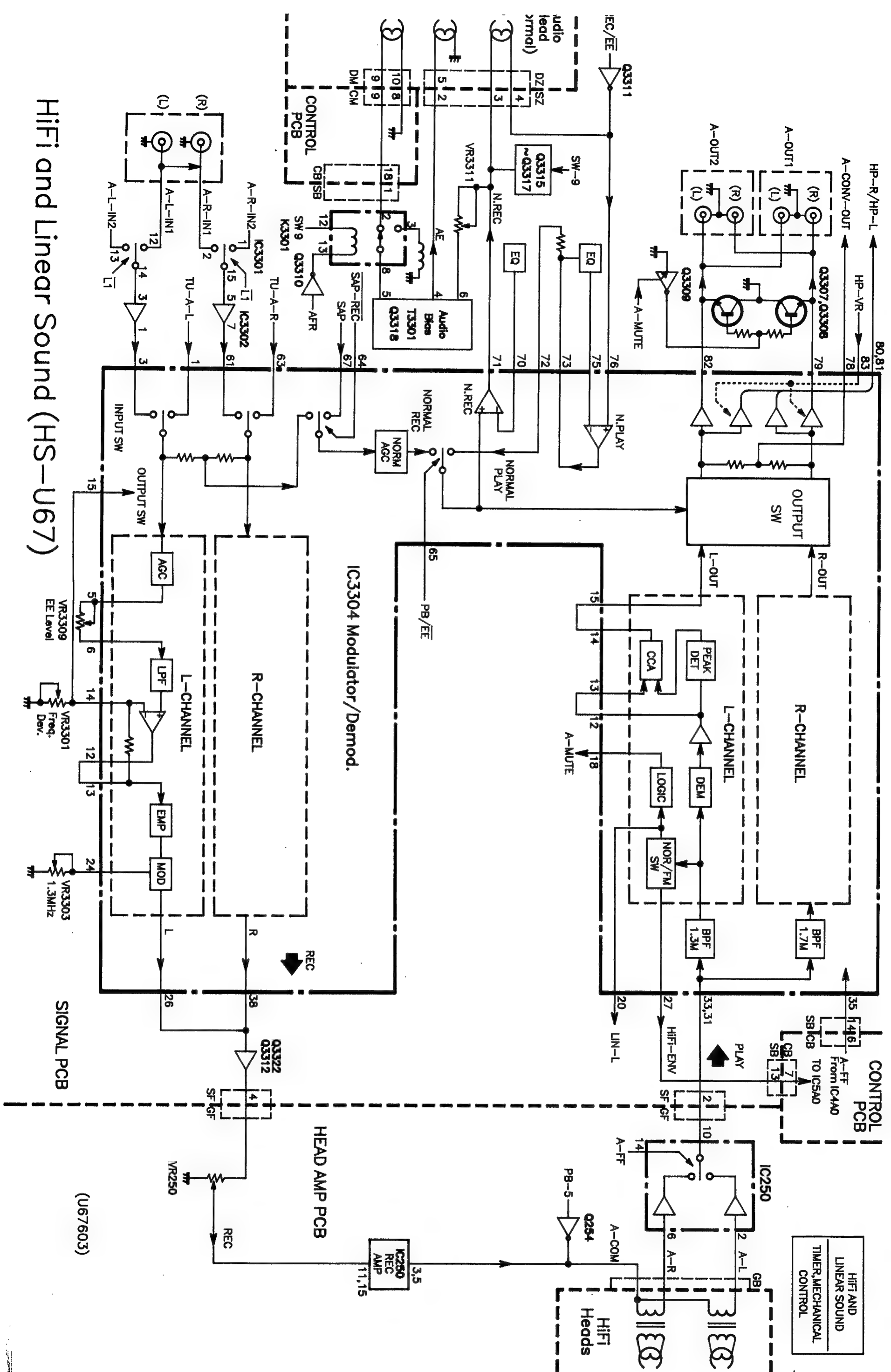
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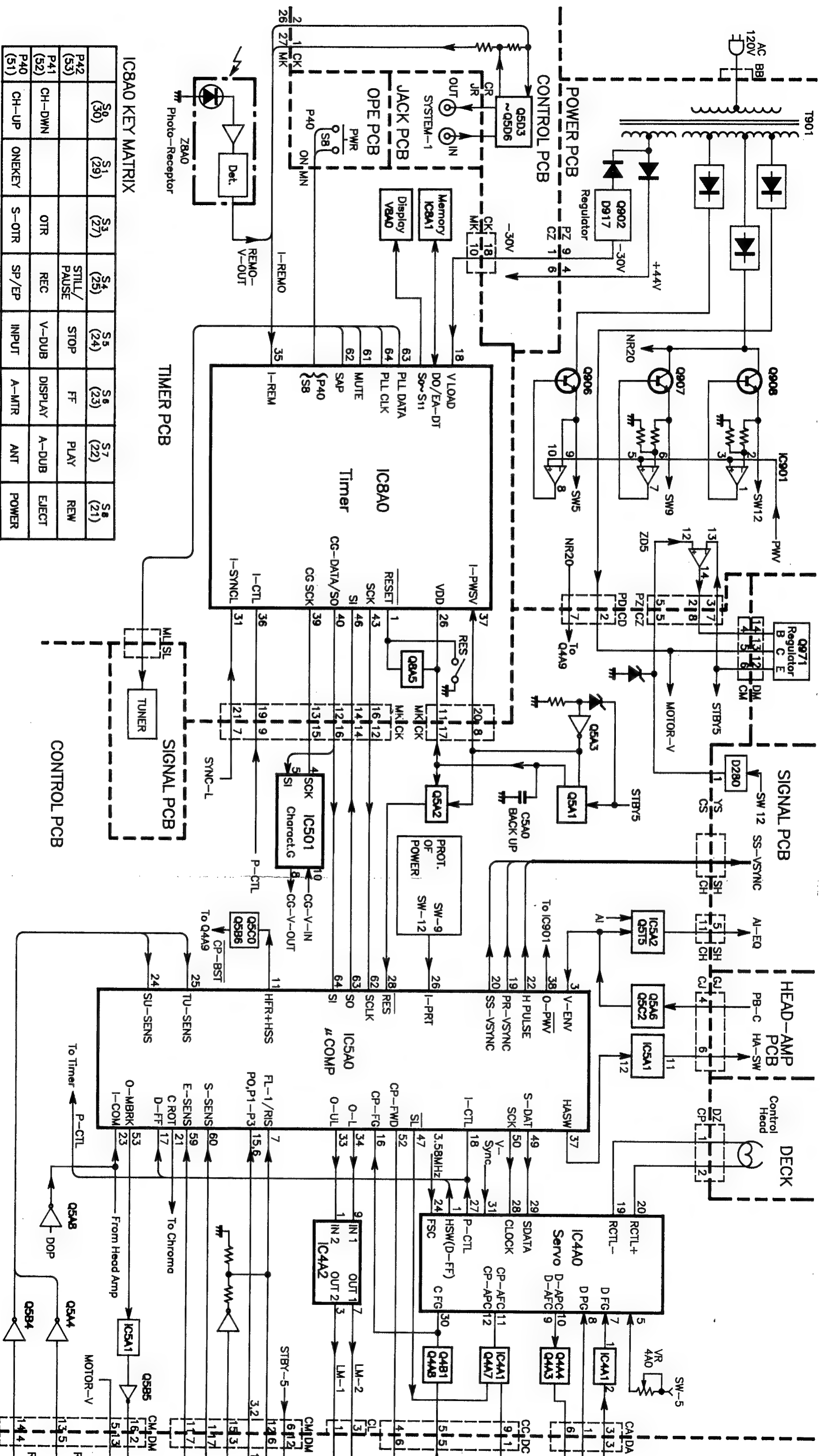
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EDIT

VL6A0

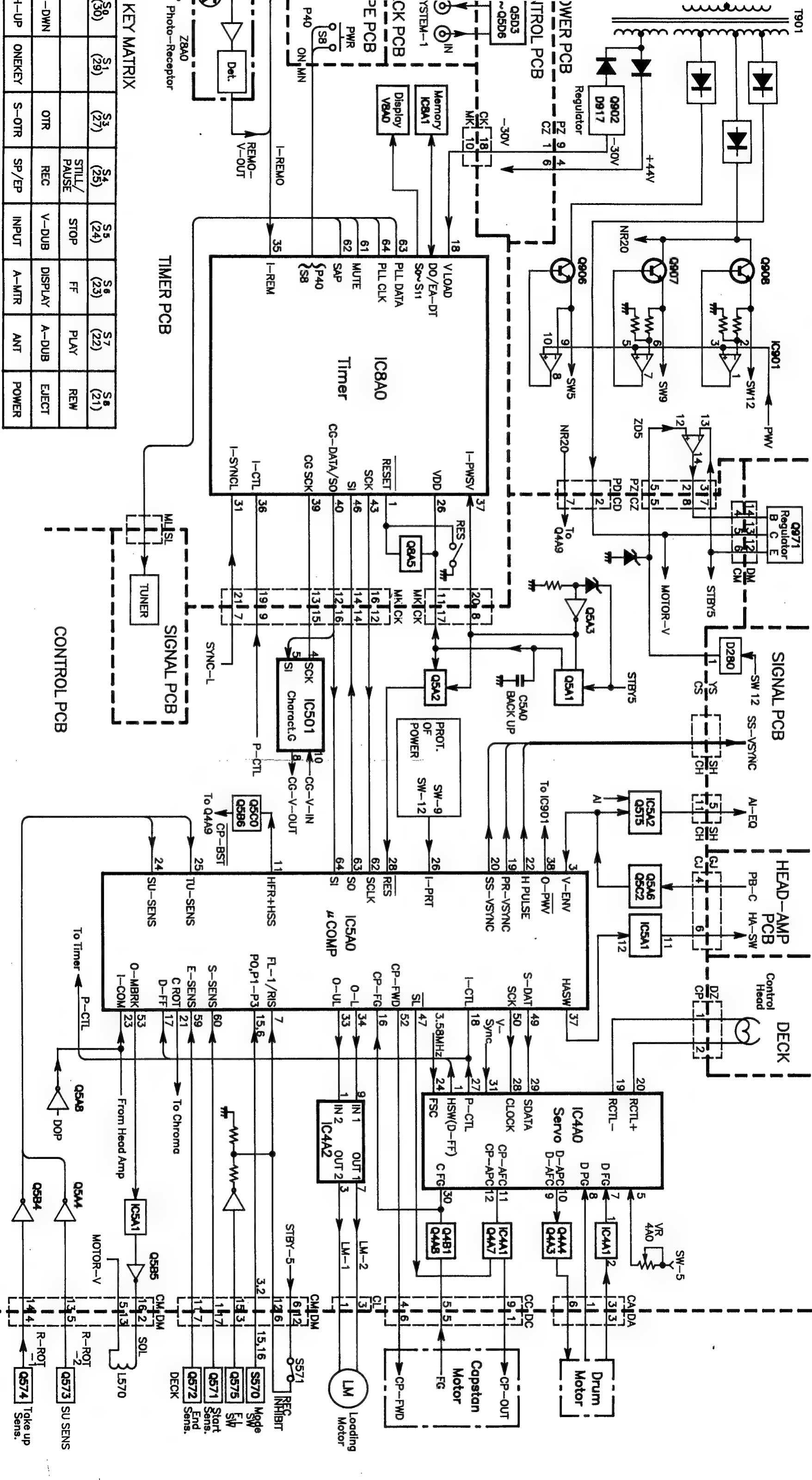
SIGNAL PCB





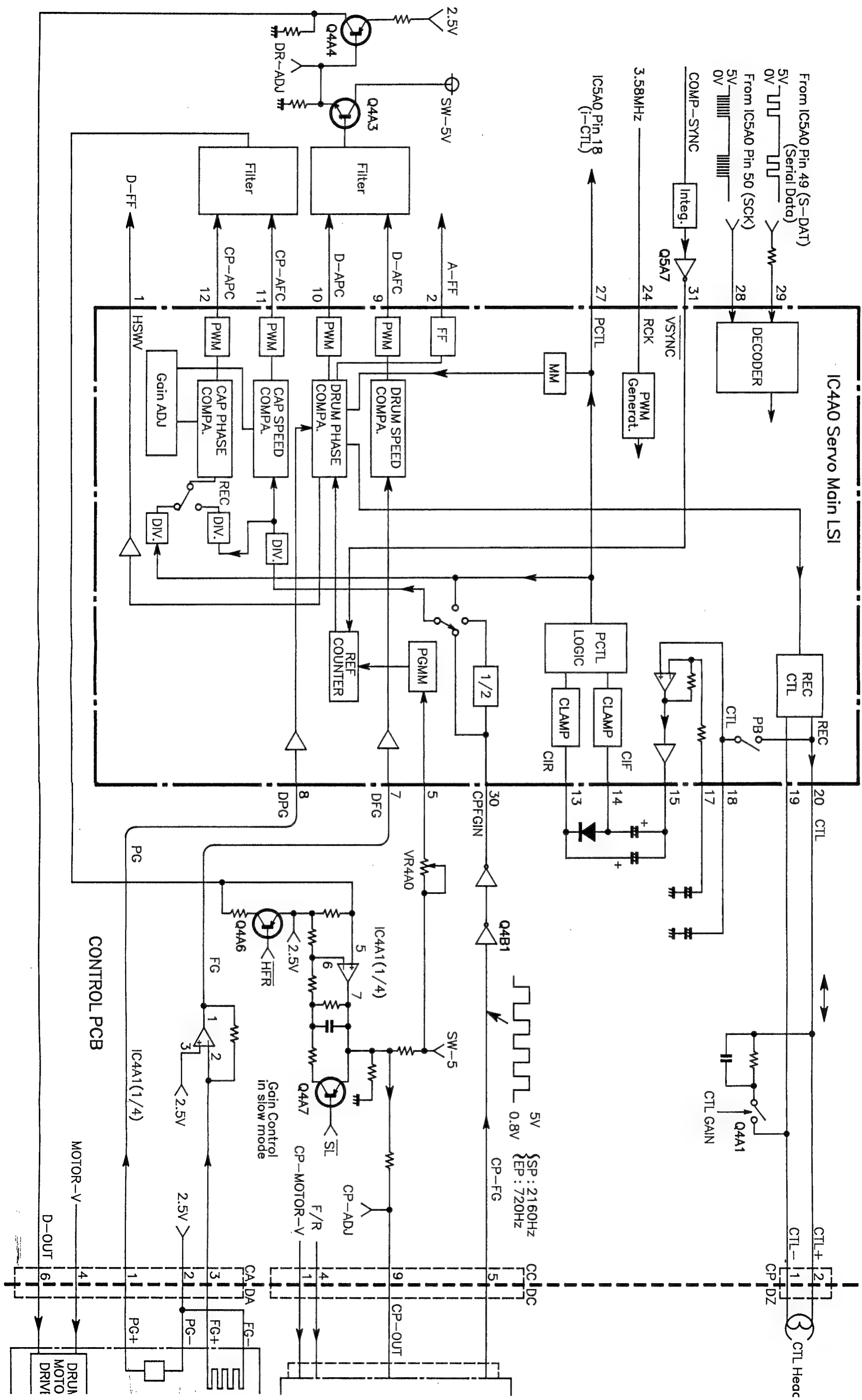
Timer, Mechanical Control (HS-U67)

(U67604)

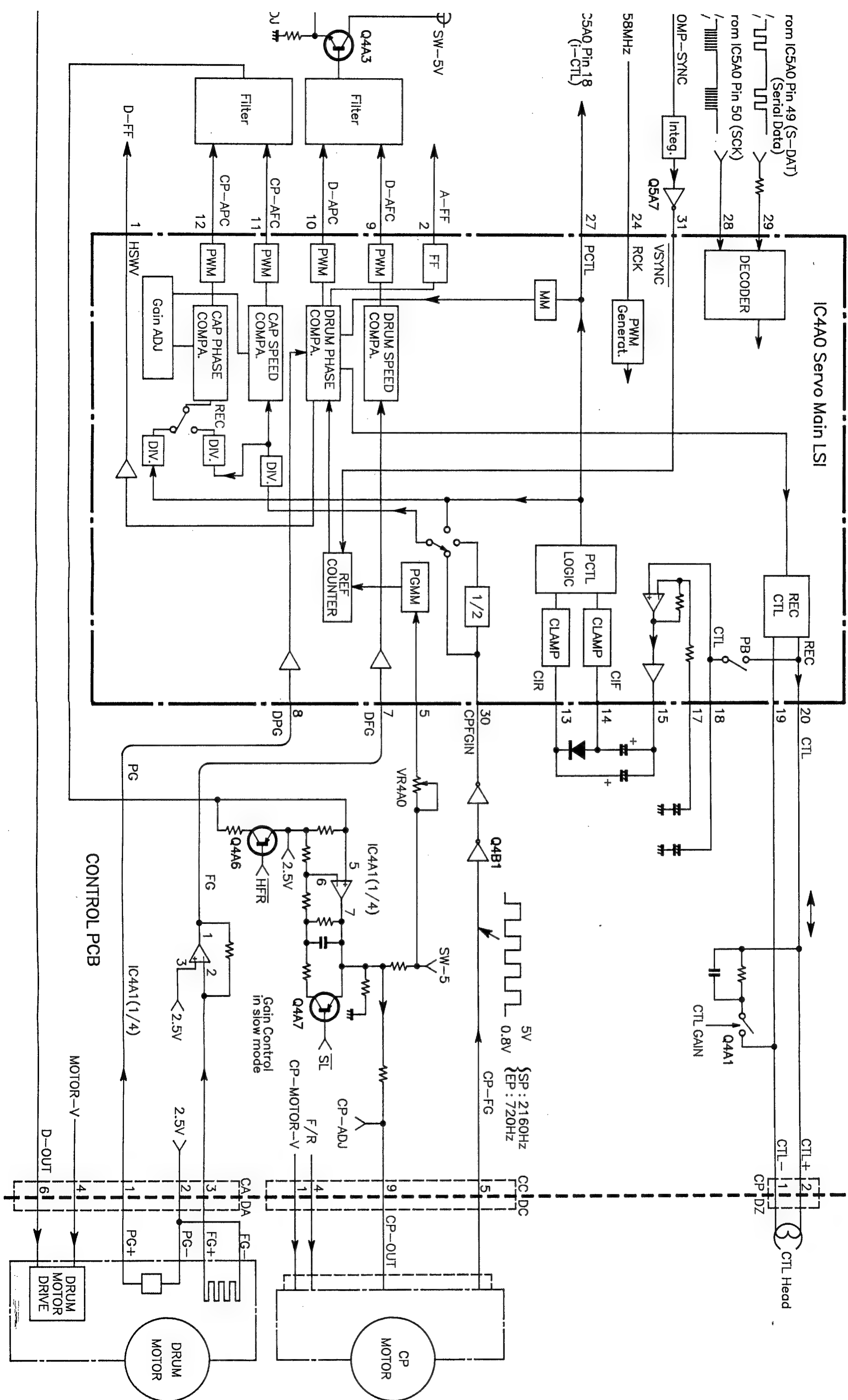


Timer, Mechanical Control (HS-U67)

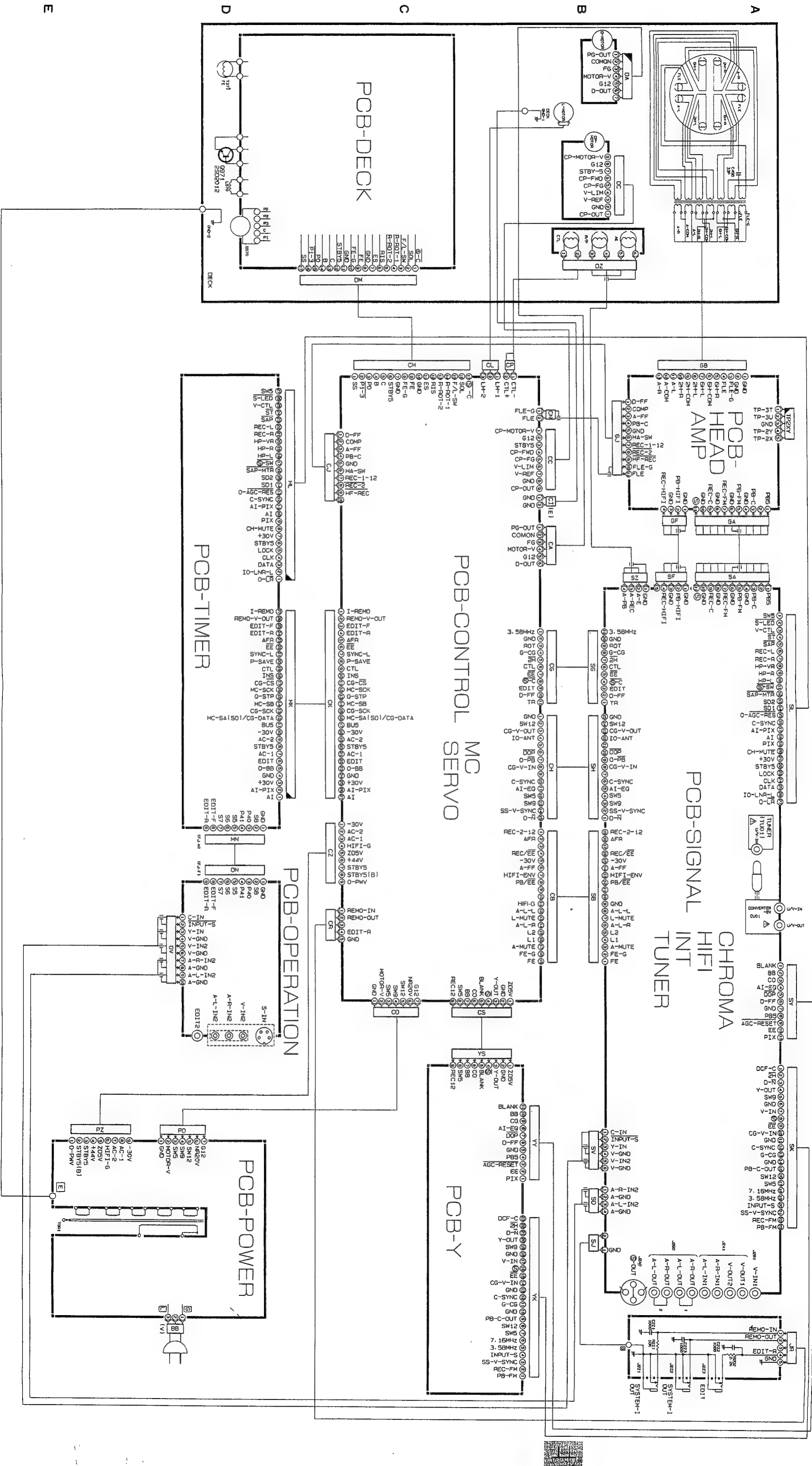
Servo System (SV01610)



Servo System (SV01610)



PCB-INTERCONNECT



CONNECT

5

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7

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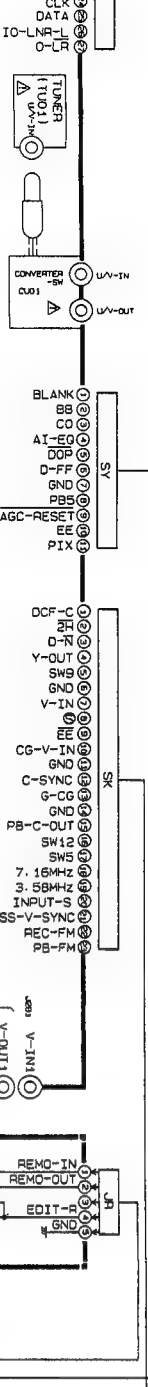
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10

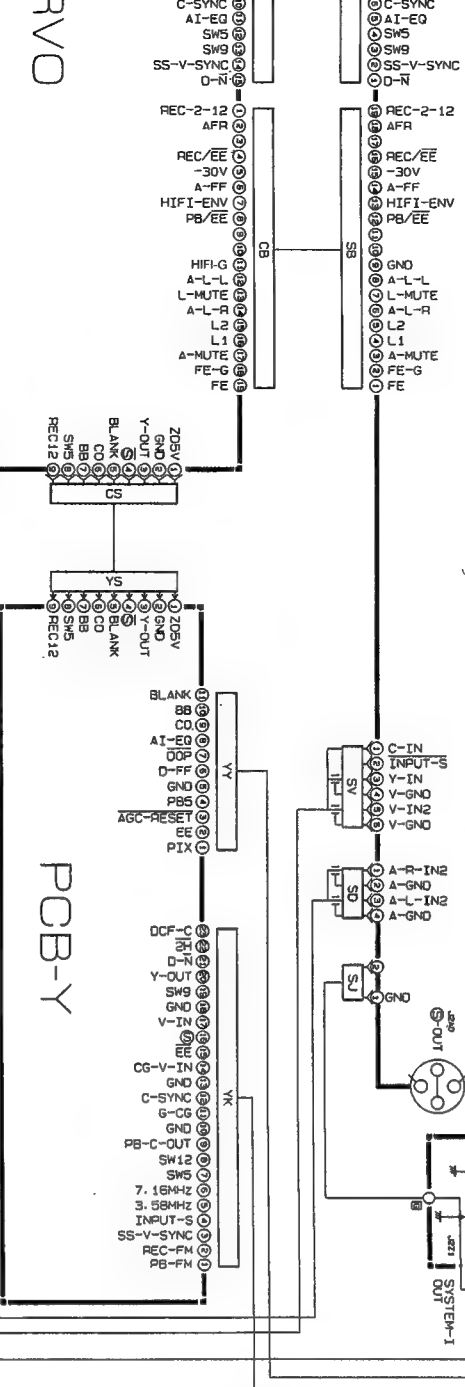
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12

13

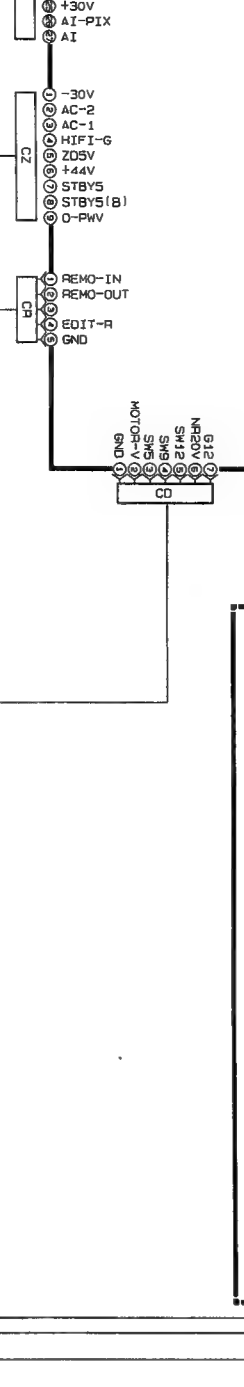


PCB-SIGNAL
HIFI
INT
TUNER

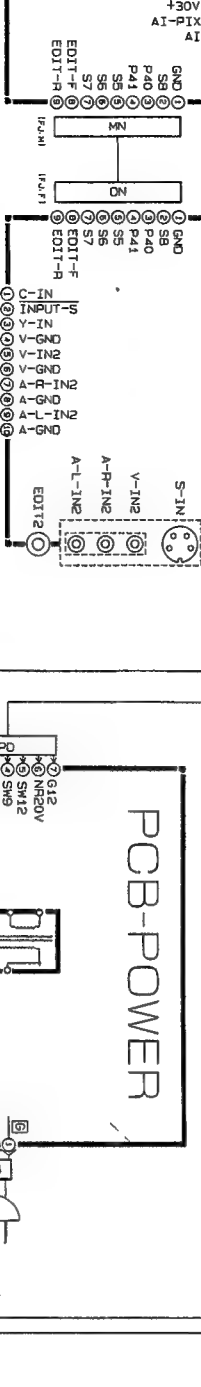


RVO

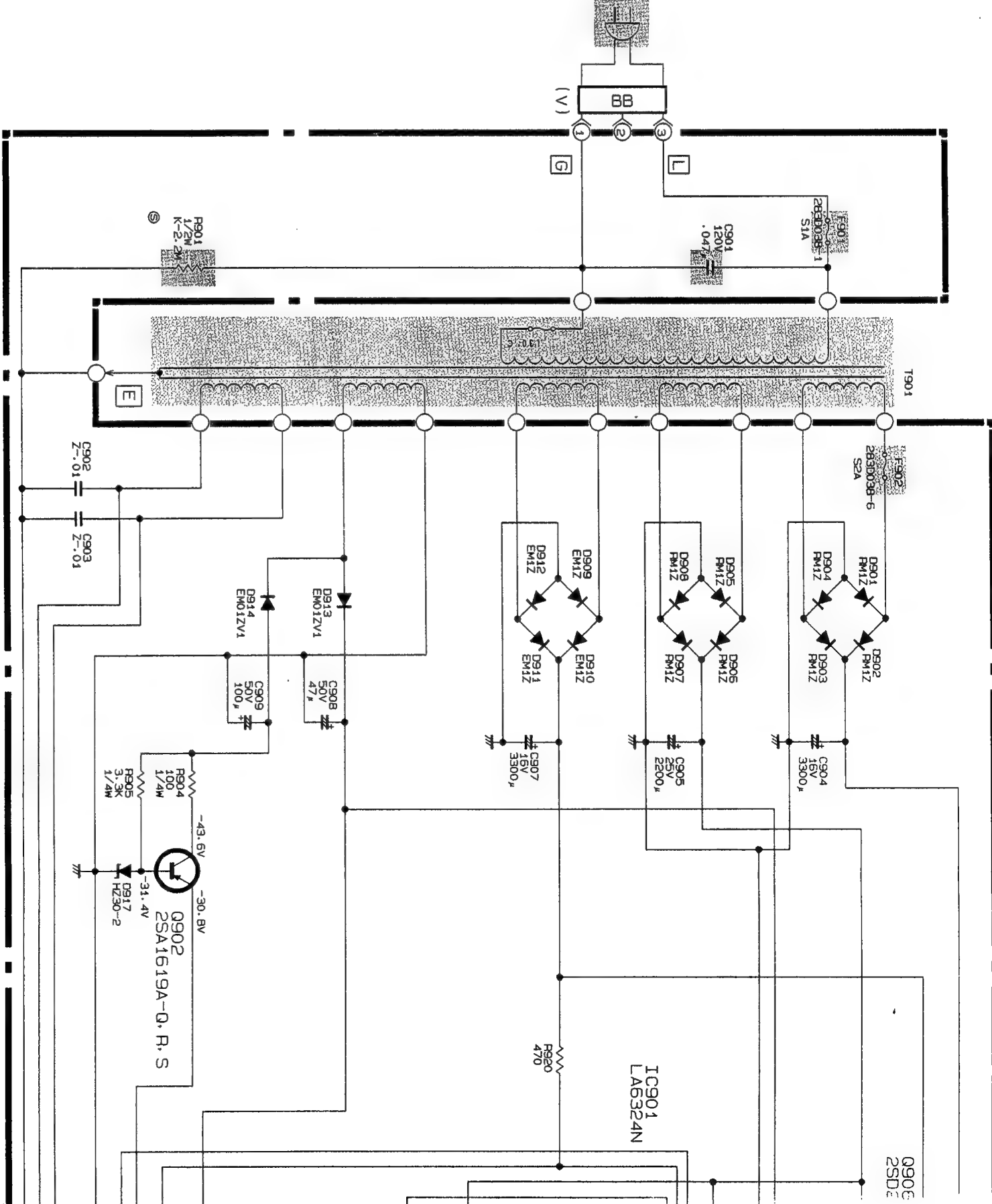
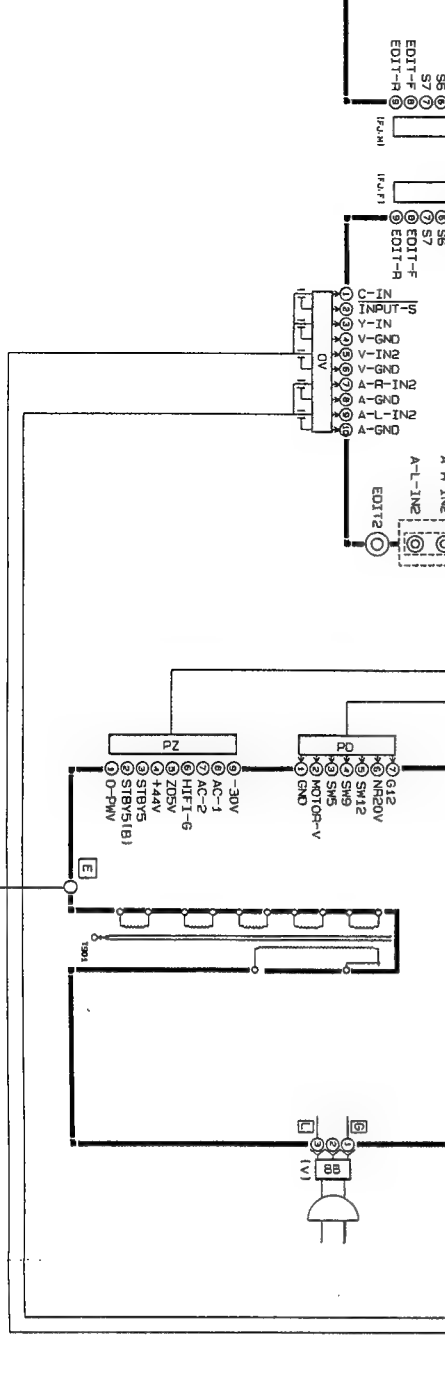
PCB-Y



PCB-OPERATION

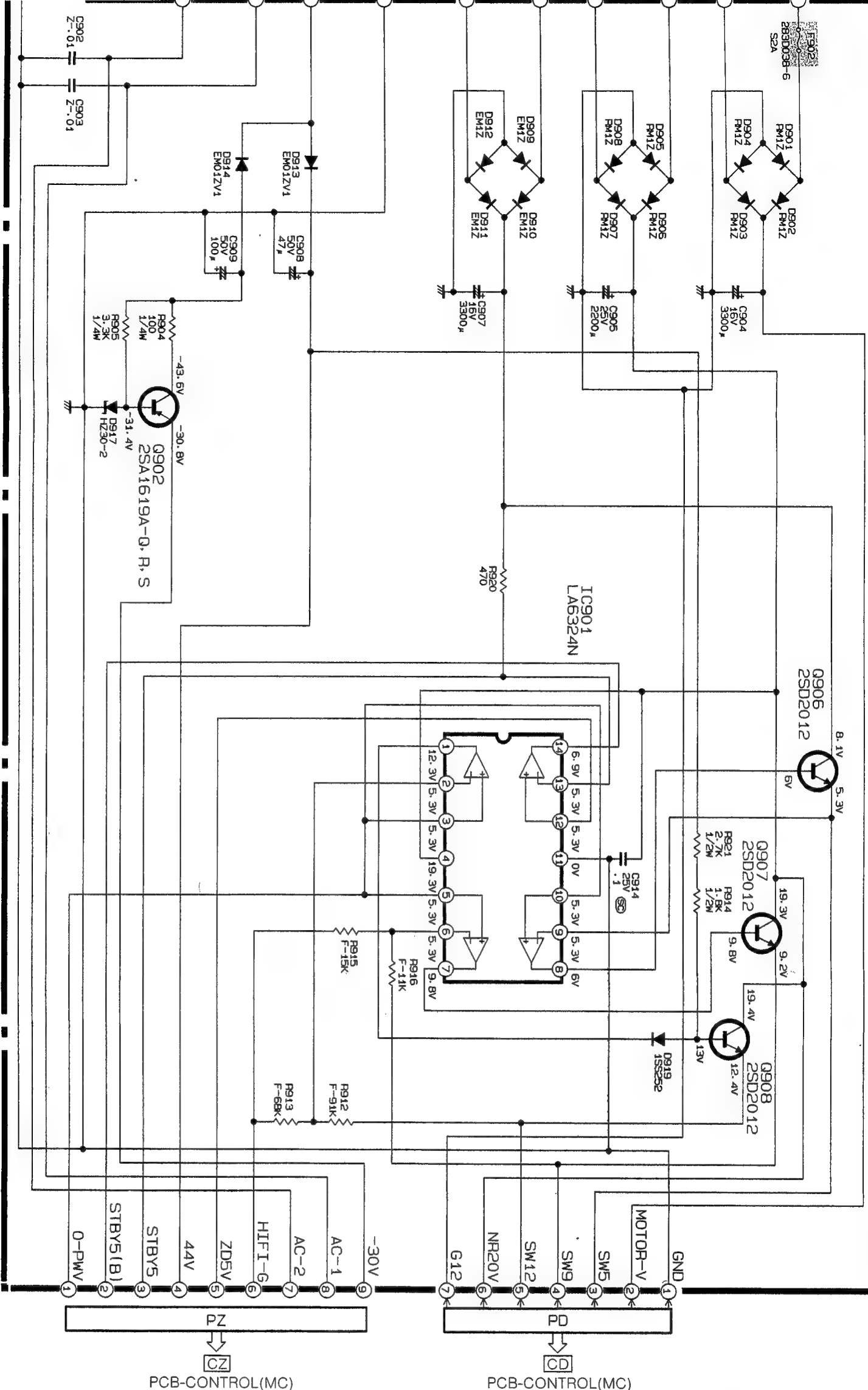


PCB-POWER



SHADED COMPONENTS HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS READ CAREFULLY THE PRODUCT SAFETY NOTICE IN THE SERVICE MANUAL. DON'T DEGRADE THE SAFETY OF THE VCR THROUGH IMPROPER SERVICING.

POB-POWER



SHADED COMPONENTS HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS READ CAREFULLY THE PRODUCT SAFETY NOTICE IN THE SERVICE MANUAL. DON'T DEGRADE THE SAFETY OF THE VCR THROUGH IMPROPER SERVICING.

SCHEMATIC DIAGRAM

CONTENTS
● PCB-INTER CONNECT
● POWER
● TIMER
● HIFI
● OPERATION

NOTE 1:

1. DC voltages were measured from points indicated to the circuit ground with a digital voltmeter.
2. The voltages parenthesised are on SP recording mode. While those without parenthesised on SP play back mode.

NOTE 2:

1. The unit of resistance "ohm" entirely omitted. Accordingly, K = 1000 ohms M = 1000K ohms.

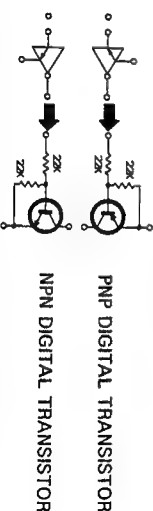
2. The wattage of resistor, not specifically designated, is 1/4 watt except CHIP resistors.
3. Resistors, not specifically designated, are carbon resistors.
4. The marks of resistors are as follows.

CE	: Cemented resistor
MB	: Metal oxide film resistor (type B)
⑤	: Fixed composition resistors
Ⓜ	: Wire wound resistor
Ⓜ	: Metal film resistor
5. The tolerance of resistor value, not specifically designated, is: $\pm 5\%$, K = $\pm 10\%$, M = $\pm 20\%$
6. The unit of capacitance, not specifically designated, is: a) μF , for numbers less than 1 b) pF, for numbers more than 1
7. Capacitors, not specifically designated are Ceramic capacitors except electrolytic capacitors.
8. The marks of capacitors are as follows:

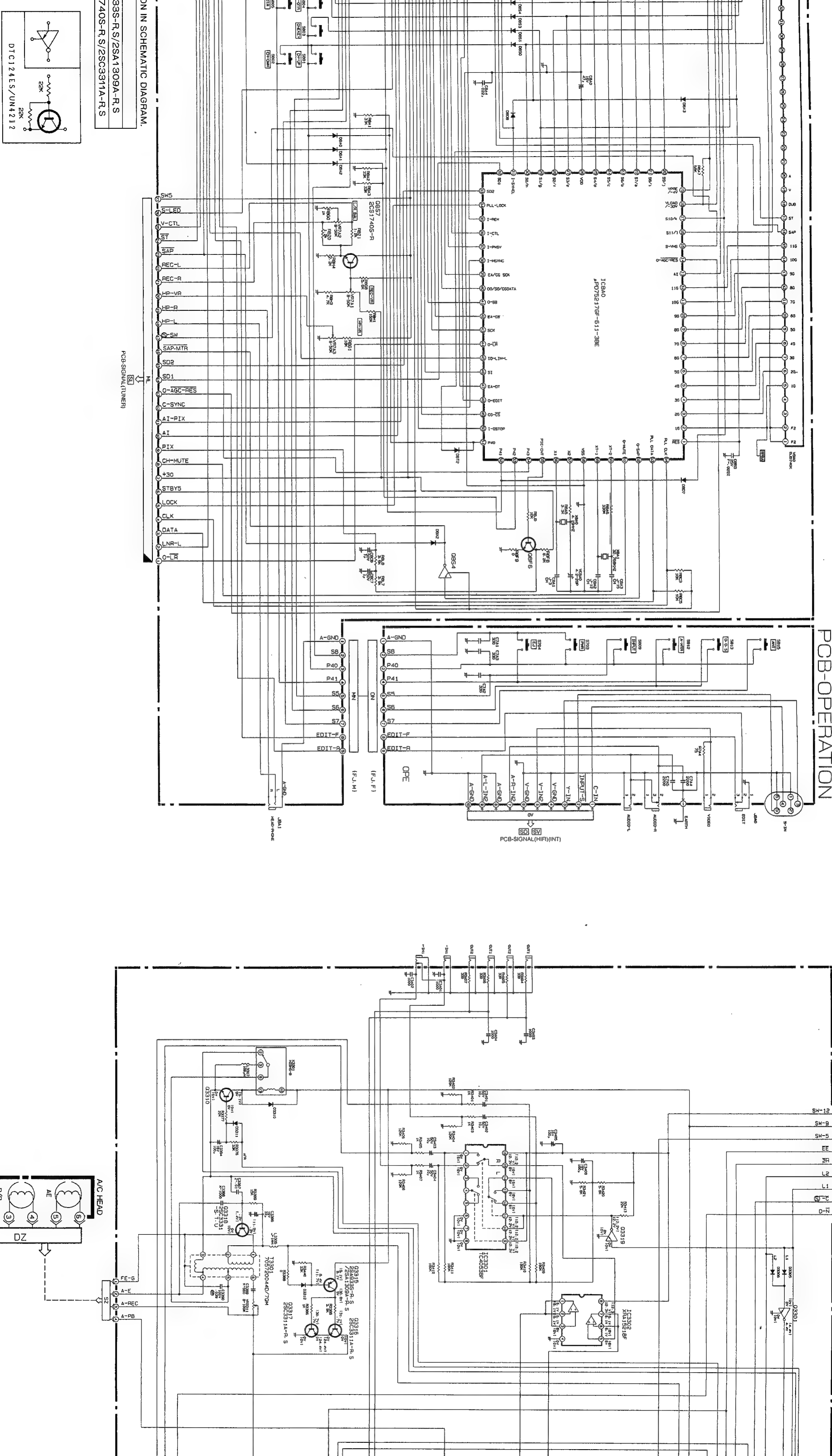
ALM	: Aluminum electrolytic capacitor
MF	: Polyester capacitor
PP	: Polypropylene film capacitor
TAN	: Tantalum capacitor
SC	: Semiconductor Ceramic Capacitors
TF	: Twin film capacitor
NP	: Non polarized electrolytic capacitor
9. The DC working voltage of capacitor, not specifically designated is: 50V
10. The tolerance of capacitor value, not specifically designated is: $\pm 10\%$ and J = $\pm 5\%$ K = $\pm 10\%$ M = $\pm 20\%$ P = $\pm 100\%$
C = $\pm 0.25\text{PF}$ D = $\pm 0.5\text{PF}$ F = $\pm 1\text{PF}$ Z = $\pm 20\%$ N = $\pm 30\%$
11. Ceramic capacitors with the marks RH, UJ, SL, etc. are temperature compensating types.

SPECIFIC SYMBOL

⌋	Zener Diode	⌋	Crystal unit
⌋	Varicap	⌋	LE Diode
⌋	Posistor	⌋	Photo Diode
⌋	Thermistor	⌋	Ceramic filter
⌋	Fusible Resistor		



This is a basic schematic diagram. Some sets may be subject to modification according to engineering improvement.



PCB-CONTROL(SERVO
[CB]

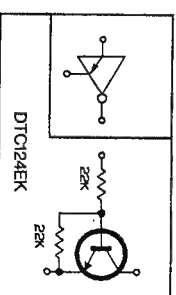
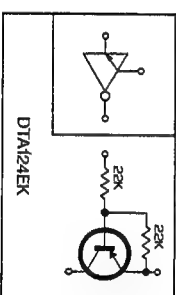
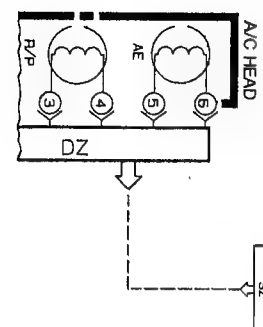
CB

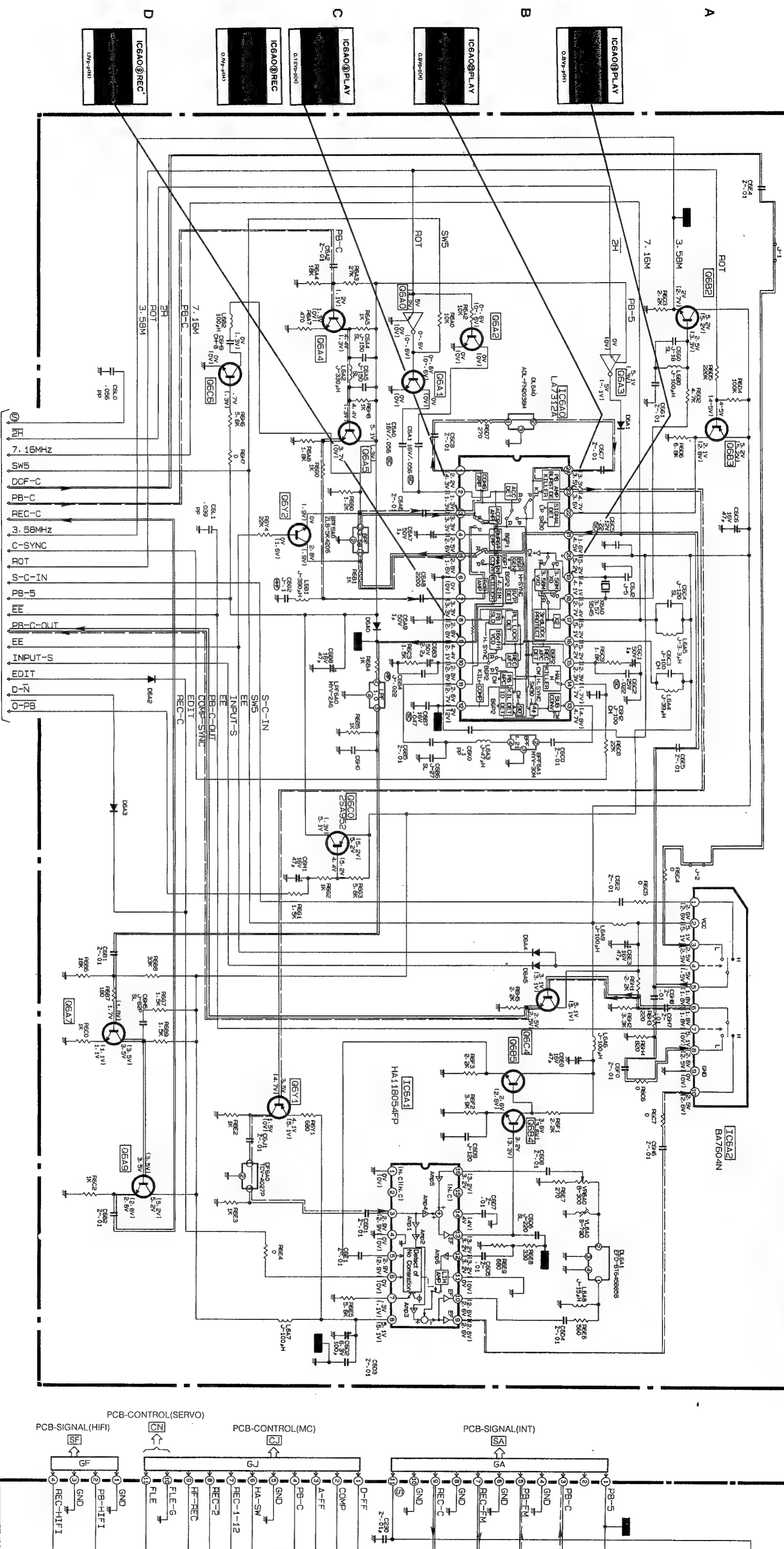
NOTE) PARTS WITHOUT INDICATION IN SCHEMATIC DIAGRAM

● DIODES ARE DAN202K

●PNP TRANSISTORS ARE 2SA1037K-S

●NPN TRANSISTORS ARE 2SC2412K-S



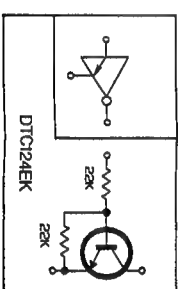
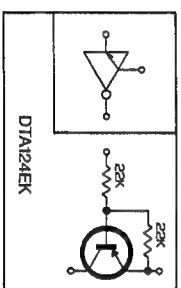


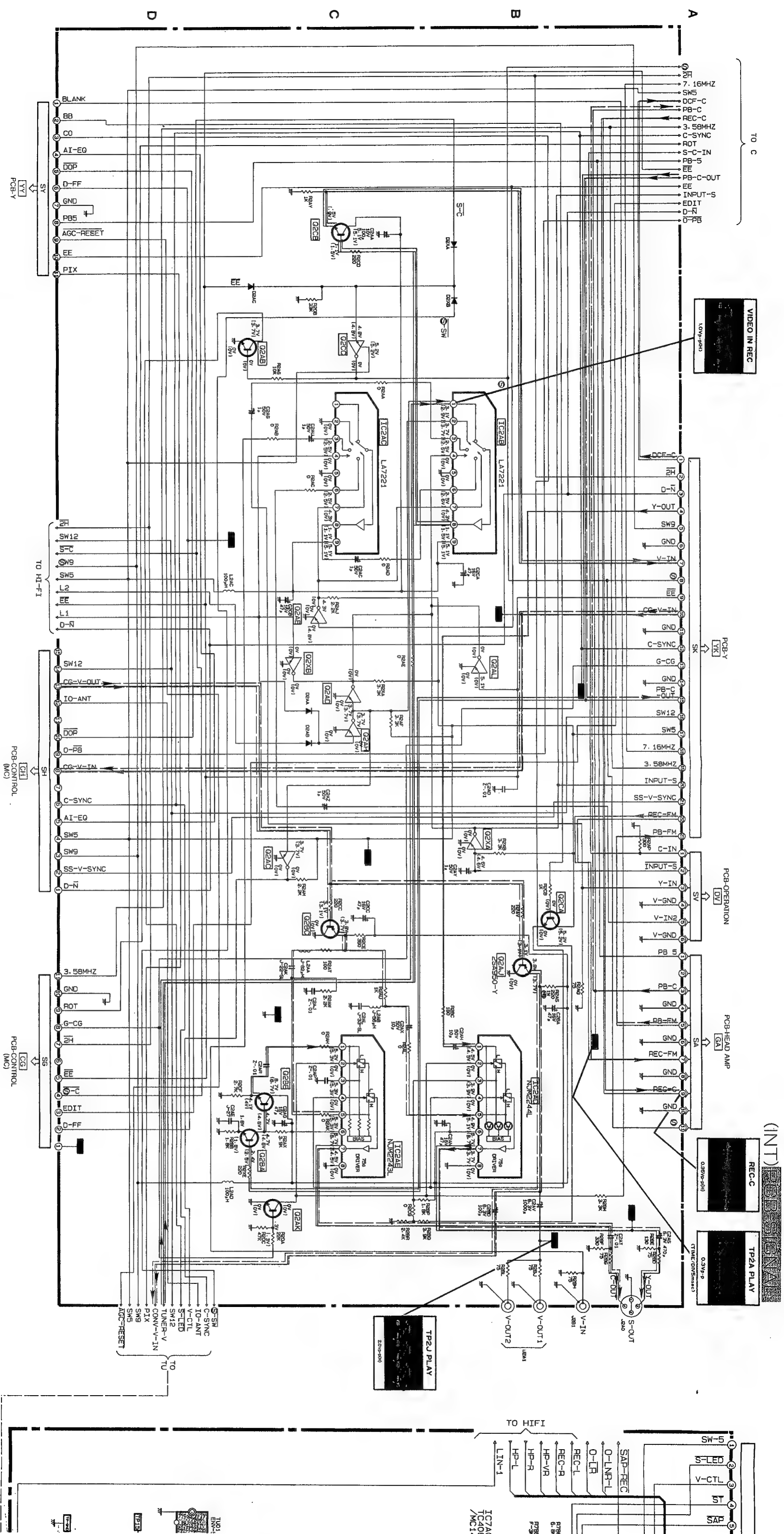
NOTE) PARTS WITHOUT INDICATION IN SCHEMATIC DIAGRAM.

● DIODES ARE 1SS252

● PNP TRANSISTORS ARE 2SA1037K-S

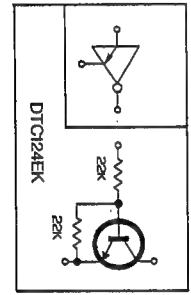
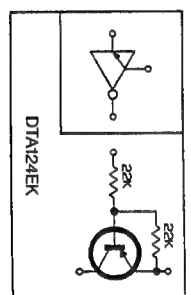
● NPN TRANSISTORS ARE 2SC2412K-S



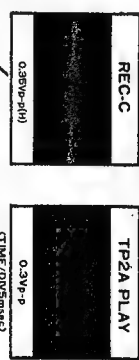


NOTE) PARTS WITHOUT INDICATION IN SCHEMATIC DIAGRAM.

- DIODES ARE 1SS252
- PNP TRANSISTORS ARE 2SA1037K-S
- NPN TRANSISTORS ARE 2SC2412K-S

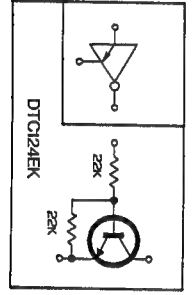
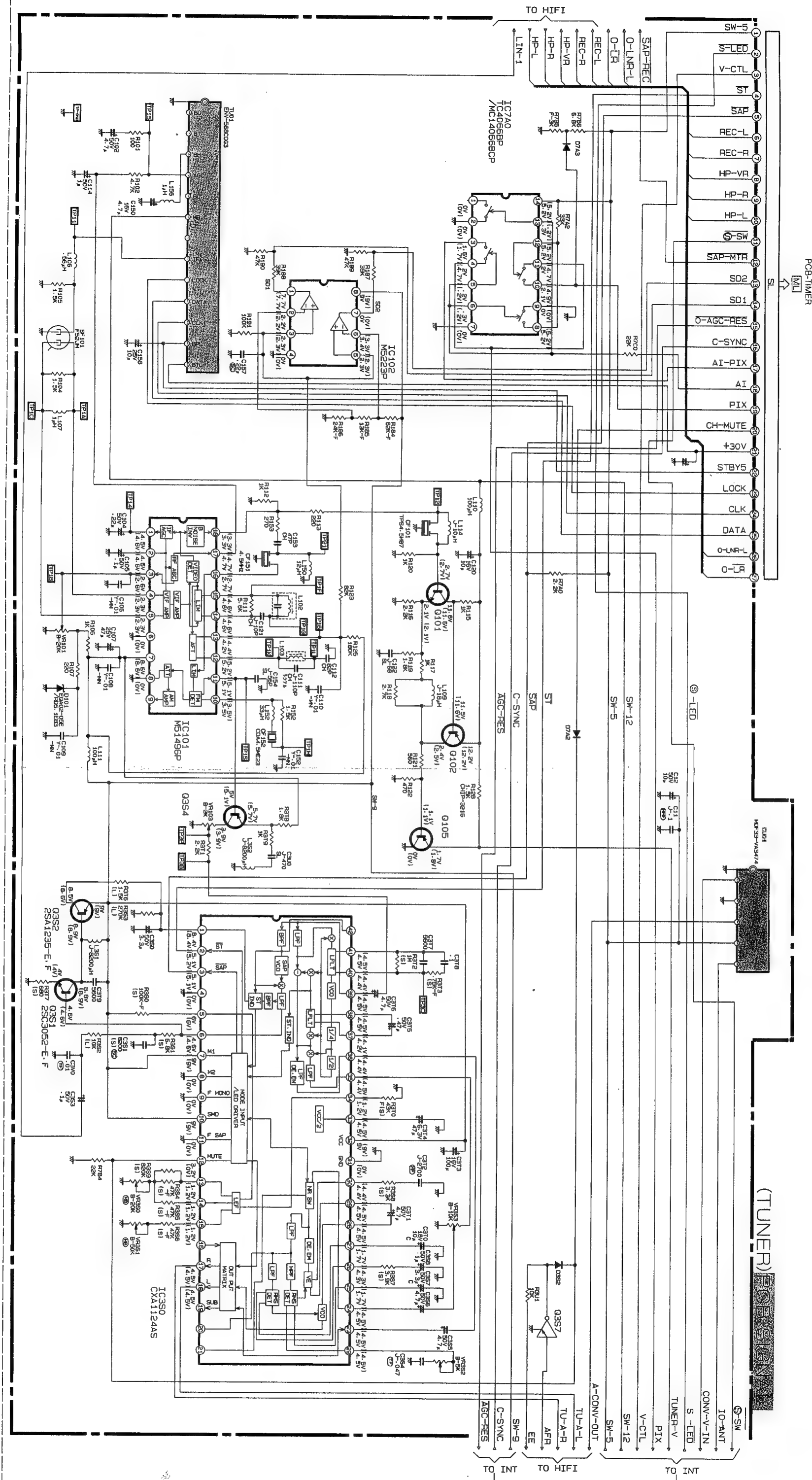


(INT) PCB SIGNAL



NOTE) PARTS V

- DIODES ARE
- PNP TRANSI
- NPN TRANSI



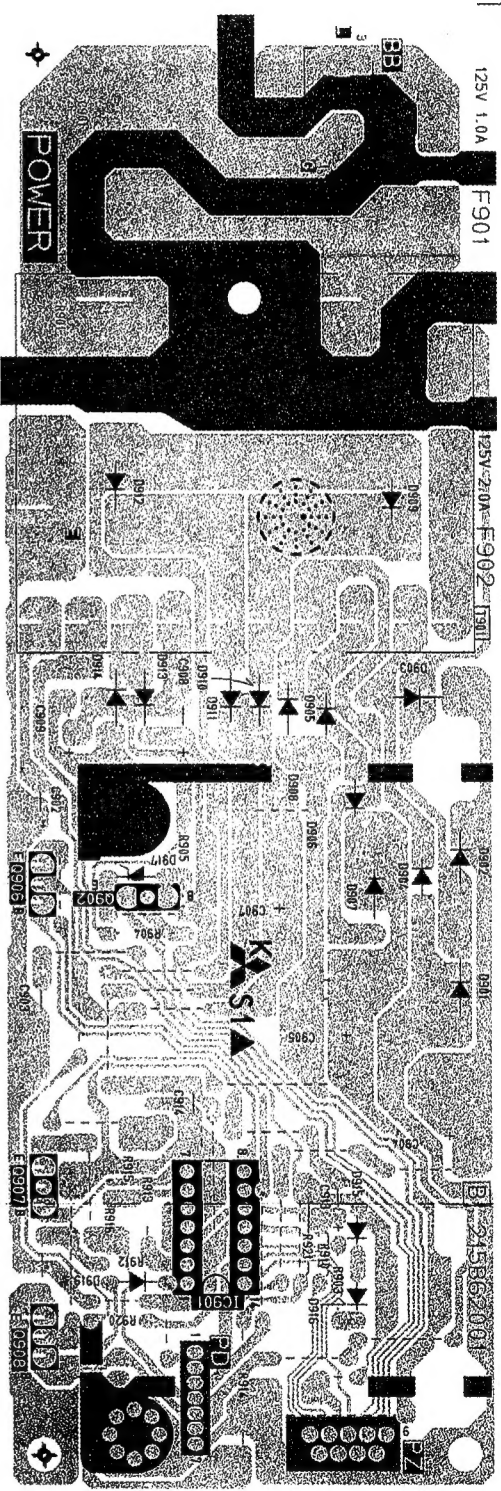
1	
2	
3	
4	
5	
6	



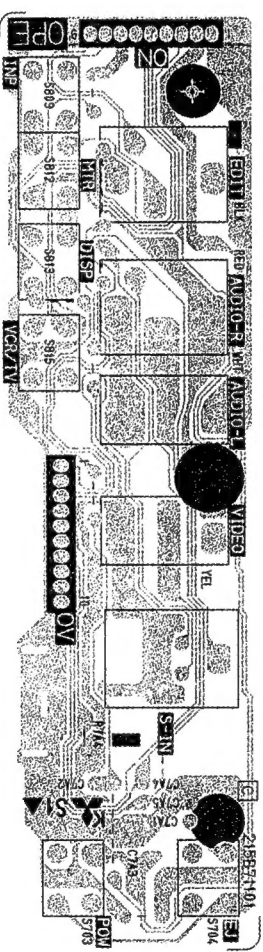
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C2003	A-5		C2J5	A-1		Q2C3	C-5		R2028	B-4	
C2004	A-5		C2J6	B-1		Q2C4	C-5		R2029	A-4	
C2006	A-5		C2J8	C-5		Q2C5	C-5		R2030	A-4	
C2007	A-5		C2J9	C-5		Q2C6	B-1		R2032	B-5	
C2009	A-3		C2K0	B-1		Q2C7	B=2		R2033	A-6	
C2010	A-3		C2K2	B-1		Q2C8	C-1		R2034	A-5	
C2011	A-3		C2M1	A-2		Q2C9	B-1		R2035	A-3	
C2012	B-3		C2M2	A-1		Q2D0	B-1		R2036	A-5	
C2013	A-3		C2M3	C-1		Q2D1	B-1		R2A4	B-2	
C2016	A-5		C2M4	B-1		Q2D2	B-1		R2A5	B-2	
C2018	A-5		C2M7	A-1		Q2D3	B-1		R2A6	B-2	
C2019	A-5		C2M8	B-2		Q2D4	B-1		R2A7	B-2	
C2021	A-4		C2M9	A-1		Q2D6	B-1		R2A9	B-2	
C2022	A-4		C2N0	A-2		Q2D7	B-1		R2B0	C-3	
C2025	A-4		C2N1	A-1		Q2D8	C-1		R2B1	B-2	
C2027	A-4		C2N2	A-1		Q2E0	A-2		R2B2	C-2	
C2028	A-4		C2N5	C-5		Q2E1	A-2		R2B3	C-2	
C2029	A-5		C2N7	B-3		Q2E2	A-1		R2B4	B-3	
C2A1	B-3		C2N8	B-2		Q2E3	A-1		R2B5	C-2	
C2A5	B-2		C2N9	C-2		Q2E4	C-1		R2B6	C-4	
C2A6	B-2		C2P0	B-3		Q2F0	A-3		R2B7	C-3	
C2A7	B-2		C2T0	C-5		Q2F1	A-3		R2B8	C-3	
C2A9	B-2		C2V0	B-1		Q2F3	A-2		R2B9	C-3	
C2B1	B-2		C2V2	C-5		Q2G1	C-1		R2C0	C-3	
C2B3	B-3					Q2G2	C-4		R2C1	C-3	
C2B4	C-2		IC2001	A-5		Q2G3	C-4		R2C7	C-2	
C2B5	B-2		IC2002	A-4		Q2G4	B-3		R2C8	C-4	
C2B6	C-2		IC2003	A-4		Q2G5	B-2		R2C9	C-4	
C2B7	C-2		IC2A0	B-3		Q2G6	C-4		R2D0	C-1	
C2B8	C-3		IC2A1	C-3		Q2S4	C-3		R2D1	C-4	
C2B9	C-2		IC2A2	C-5		Q2S5	C-3		R2D2	C-4	
C2C0	C-2		IC2A3	B-1		Q2S6	C-2		R2D3	C-4	
C2C1	C-2		IC2A4	A-2					R2D4	C-4	
C2C3	C-3								R2D5	C-4	
C2C5	C-3		Q2001	B-5		R2001	A-5		R2D7	C-4	
C2C6	C-3		Q2002	A-5		R2002	A-6		R2D9	A-2	
C2C7	C-3		Q2003	A-6		R2003	A-5		R2E1	A-2	
C2D0	C-4		Q2004	B-5		R2004	A-5		R2E2	A-2	
C2D8	B-3		Q2005	A-3		R2005	A-5		R2E3	B-4	
C2F1	C-3		Q2006	B-3		R2006	A-5		R2E4	C-3	
C2F2	C-3		Q2007	A-3		R2007	A-5		R2E5	C-4	
C2F4	C-3		Q2008	A-3		R2008	A-5		R2E6	C-3	
C2F5	C-2		Q2009	B-4		R2009	A-5		R2E7	C-2	
C2G0	C-5		Q2010	B-5		R2010	A-6		R2E9	C-5	
C2G7	C-1		Q2011	A-2		R2011	A-5		R2F0	C-5	
C2G9	B-2		Q2A1	B-2		R2012	A-5		R2F1	C-5	
C2H0	B-2		Q2A2	B-2		R2013	A-3		R2F2	C-5	
C2H1	B-1		Q2A3	C-3		R2014	B-5		R2F3	C-5	
C2H2	B-1		Q2A4	C-2</							

SYMBOL NO.	ADDRESS
R2027	A - 4
R2028	B - 4
R2029	A - 4
R2030	A - 4
R2032	B - 5
R2033	A - 6
R2034	A - 5
R2035	A - 5
R2036	A - 5
R2A4	B - 2
R2A5	B - 2
R2A6	B - 2
R2A7	B - 2
R2A9	B - 2
R2B0	C - 3
R2B1	B - 2
R2B2	C - 2
R2B3	C - 2
R2B4	B - 3
R2B5	C - 2
R2B6	C - 4
R2B7	C - 3
R2B8	C - 3
R2B9	C - 3
R2C0	C - 3
R2C1	C - 3
R2C7	C - 2
R2C8	C - 4
R2C9	C - 4
R2D0	C - 1
R2D1	C - 4
R2D2	C - 4
R2D3	C - 4
R2D4	C - 4
R2D5	C - 4
R2D7	C - 4
R2D9	A - 2
R2E1	A - 2
R2E2	A - 2
R2E3	B - 4
R2E4	C - 3
R2E5	C - 4
R2E6	C - 3
R2E7	C - 2
R2E9	C - 5
R2F0	C - 5
R2F1	C - 5
R2F2	C - 5
R2F3	C - 5
R2F4	C - 5
R2F5	C - 5
R2F6	C - 6
R2F7	C - 5
R2F8	C - 5
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R2G2	B - 2
R2G3	B - 2
R2G4	B - 2

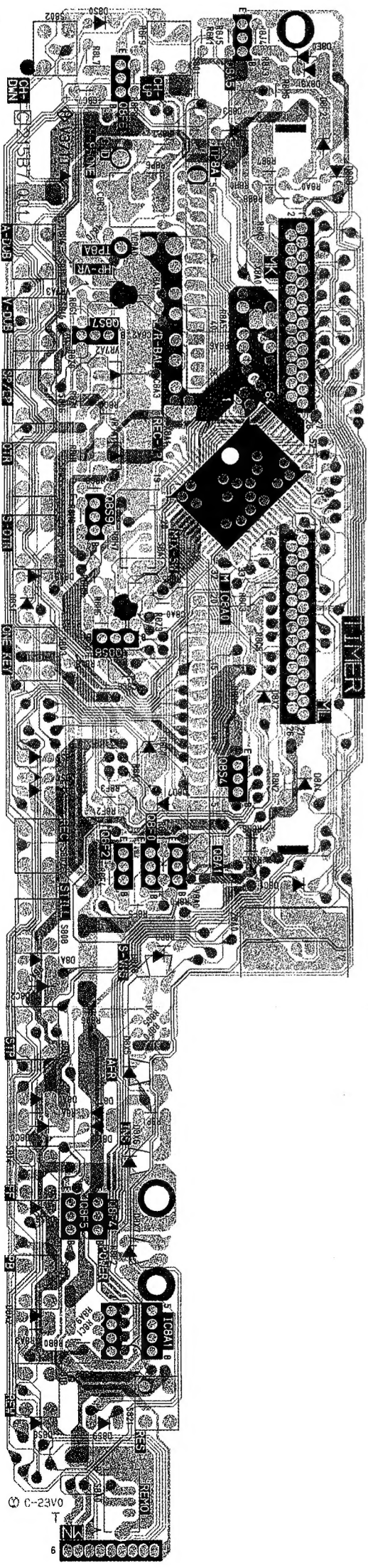
PCB-POWER



PCB-OPERATION

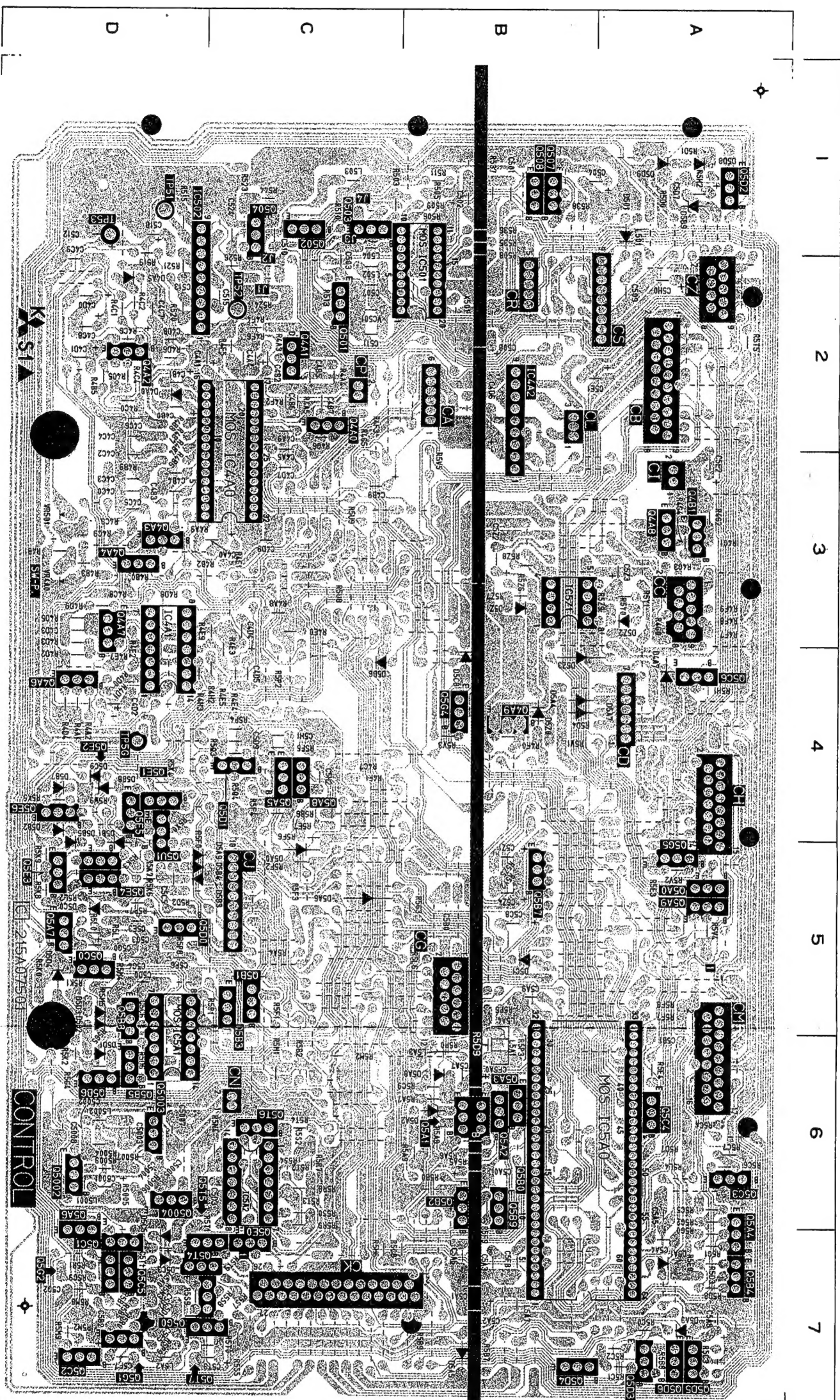


PCB-TIMER



ADDRESS			SYMBOL NO.			ADDRESS			SYMBOL NO.			ADDRESS		
A-4	R2G5	B-1	R2R3	A-2		R2R3	A-2							
B-4	R2G6	B-1	R2R6	C-4		R2R6	C-4							
A-4	R2G7	B-1	R2T7	B-2		R2T7	B-2							
A-4	R2G9	B-1	R2T8	B-1		R2T8	B-1							
B-5	R2H0	B-1	R2T9	B-2		R2T9	B-2							
A-6	R2H1	C-1	R2U0	B-3		R2U0	B-3							
A-5	R2H2	B-1	R2U1	B-3		R2U1	B-3							
A-3	R2H3	B-1	R2U2	B-3		R2U2	B-3							
A-5	R2H4	C-1	R2U3	C-2		R2U3	C-2							
B-2	R2H5	C-1	R2U4	C-3		R2U4	C-3							
B-2	R2H6	C-1	R2V1	B-3		R2V1	B-3							
B-2	R2H7	B-1	R2V2	A-3		R2V2	A-3							
B-2	R2H8	B-1	R2V4	B-2		R2V4	B-2							
B-2	R2J0	A-2	R2V5	B-2		R2V5	B-2							
C-3	R2J1	B-2	R2V6	C-4		R2V6	C-4							
B-2	R2J2	B-1	R2V7	B-2		R2V7	B-2							
C-2	R2J3	A-1	R2V8	A-2		R2V8	A-2							
C-2	R2J4	B-1	R2V9	A-2		R2V9	A-2							
B-3	R2J6	B-1	R2X1	B-4		R2X1	B-4							
C-2	R2J7	A-1	R2X2	C-3		R2X2	C-3							
C-4	R2J9	B-2	R2X9	A-2		R2X9	A-2							
C-3	R2K0	B-1	R2Y0	C-3		R2Y0	C-3							
C-3	R2K1	B-1	R2Y1	C-3		R2Y1	C-3							
C-3	R2K2	A-1	R2Y3	C-5		R2Y3	C-5							
C-3	R2K3	A-2	R2Y7	C-5		R2Y7	C-5							
C-3	R2K4	A-2	R2Z0	C-2		R2Z0	C-2							
C-2	R2K5	A-1	R2Z3	C-2		R2Z3	C-2							
C-4	R2K6	A-1												
C-4	R2K7	A-1	TP2001	A-5		TP2001	A-5							
C-1	R2K8	B-2	TP2005	A-5		TP2005	A-5							
C-4	R2L0	B-2	TP20	A-3		TP20	A-3							
C-4	R2L1	B-2	TP29	C-5		TP29	C-5							
C-4	R2L2	C-1	TP2E	C-3		TP2E	C-3							
C-4	R2L3	C-2	TP2G	B-3		TP2G	B-3							
C-4	R2L4	B-2	TP2L	C-4		TP2L	C-4							
C-4	R2L6	C-1	TP2M	B-2		TP2M	B-2							
A-2	R2M0	C-5	TP2P	C-5		TP2P	C-5							
A-2	R2M2	A-2	TP2Q	C-4		TP2Q	C-4							
A-2	R2M3	B-3	TP2S	C-2		TP2S	C-2							
B-4	R2M4	B-3	TPS	A-2		TPS	A-2							
C-3	R2M5	B-3												
C-4	R2M6	B-4	VR200C	A-4		VR200C	A-4							
C-3	R2M7	B-4	VR2002	A-3		VR2002	A-3							
C-2	R2N0	C-6	VR2003	A-3		VR2003	A-3							
C-5	R2N1	C-5	VR2004	B-3		VR2004	B-3							
C-5	R2N3	B-3	VR2A0	B-3		VR2A0	B-3							
C-5	R2N4	A-1	VR2A1	C-3		VR2A1	C-3							
C-5	R2N5	B-1	VR2A2	C-3		VR2A2	C-3							
C-5	R2N6	C-5	VR2A3	C-4		VR2A3	C-4							
C-5	R2N8	B-4	VR2A4	B-3		VR2A4	B-3							
C-5	R2N9	B-3	VR2A7	C-3		VR2A7	C-3							
C-6	R2Q3	B-1	VR2A9	C-3		VR2A9	C-3							
C-5	R2Q4	C-1	VR2B0	C-3		VR2B0	C-3							
B-1	R2Q6	B-2	VR2B2	C-4		VR2B2	C-4							
B-1	R2Q7	B-2	VR2B4	C-5		VR2B4	C-5							
B-1	R2Q8	C-1	VR2B7	C-4		VR2B7	C-4							
B-1	R2Q9	B-2	VR2B9	C-5		VR2B9	C-5							
B-2	R2R0	A-2	VR2C0	A-5		VR2C0	A-5							
B-2	R2R1	B-2												
B-2	R2R2	B-2												

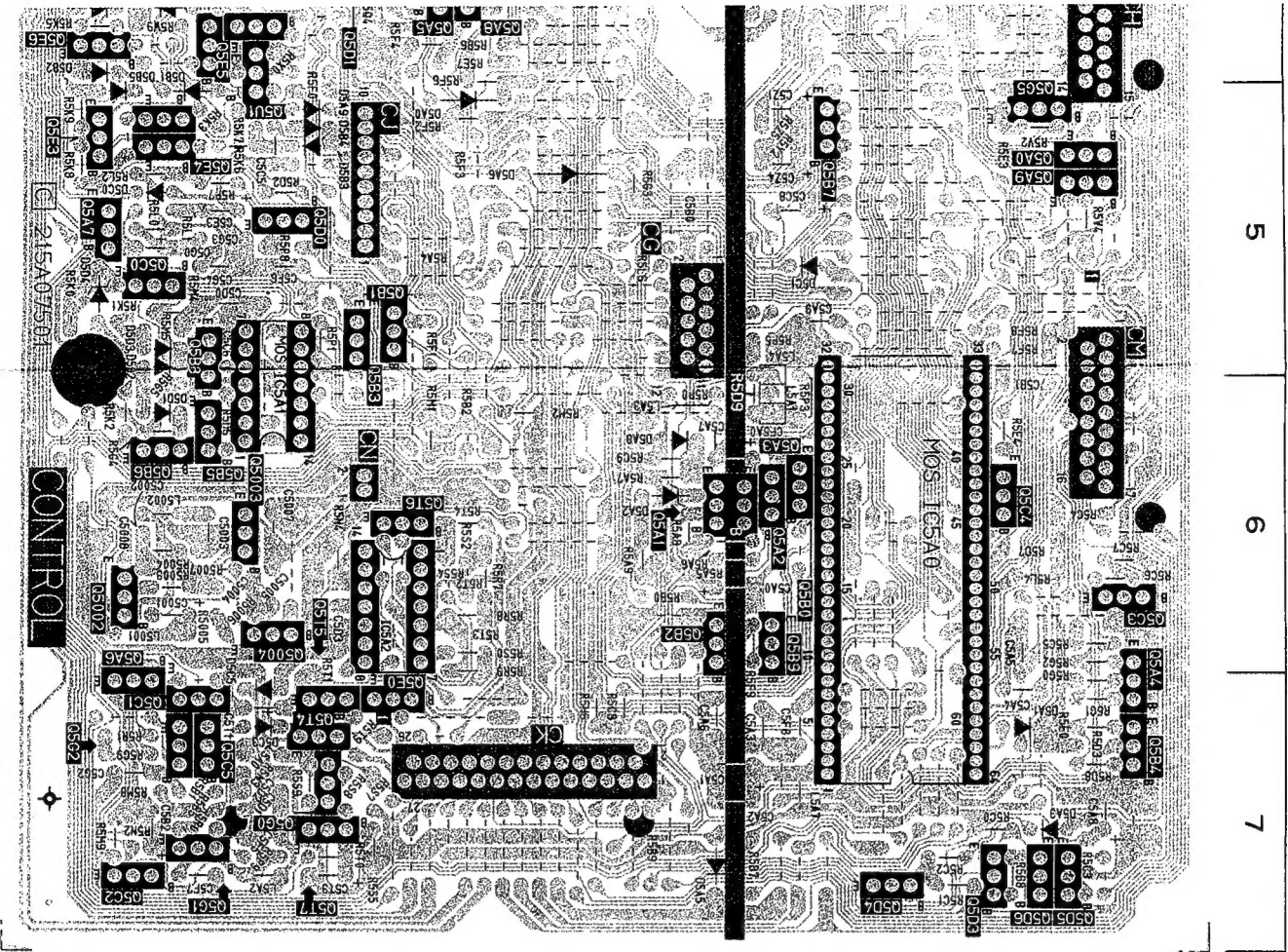
PCB-CONTROL



PCB-CONTROL

SYMBOL NO.		ADDRESS		SYMBOL NO.		ADDRESS		SYMBOL NO.		ADDRESS	
CF5A0	B - 6			L5A2	D - 7			05E2	C		
				L5A3	B - 6			05E3	C		
D4A0	D - 2			L5A4	B - 5			05E4	C		
D4A5	D - 2			L5A7	B - 7			05E5	C		
D4A7	A - 4							05E6	C		
D501	A - 1	Q4A0	C - 2			05G0	C				
D5A0	C - 5	Q4A1	C - 2			05G1	C				
D5A1	A - 7	Q4A2	D - 2			05G2	C				
D5A2	B - 6	Q4A3	D - 3			05G4	B				
D5A3	A - 7	Q4A4	D - 3			05G5	A				
D5A4	B - 4	Q4A6	D - 4			05T4	D				
D5A5	B - 7	Q4A7	D - 3			05T5	C				
D5A6	C - 5	Q4A8	A - 3			05T6	C				
D5A7	B - 4	Q4A9	B - 4			05T7	C				
D5A8	B - 6	Q4B1	A - 3			Q5U1	D				
D5A9	D - 5	Q5002	D - 6								
D5B1	D - 5	Q5003	D - 6			TP51	D				
D5B2	D - 4	Q5004	D - 6			TP52	C				
D5B3	D - 5	Q501	C - 2			TP53	D				
D5B4	D - 5	Q502	C - 1			TP5G	D				
D5B5	D - 5	Q503	C - 1								
D5B6	C - 4	Q504	C - 1			VC501	C				
D5B7	D - 4	Q507	B - 1								
D5B8	D - 4	Q508	B - 1			VR4A0	D				
D5B9	A - 1	Q5A0	A - 5			VR501	D				
D5C0	D - 5	Q5A1	B - 6								
D5C1	B - 5	Q5A2	B - 6			X501	B				
D5C3	D - 7	Q5A3	B - 6								
D5C5	D - 7	Q5A4	A - 7								
D5C8	B - 4	Q5A5	C - 4								
D5C9	D - 4	Q5A6	D - 7								
D5D1	D - 6	Q5A7	D - 5								
D5D2	D - 5	Q5A8	C - 4								
D5D3	D - 5	Q5A9	A - 5								
D5D4	D - 5	Q5B0	B - 6								
D5D8	A - 1	Q5B1	C - 5								
D5D9	A - 1	Q5B2	B - 6								
D5Z0	B - 4	Q5B3	C - 5								
D5Z1	B - 3	Q5B4	A - 7								
D5Z2	A - 3	Q5B5	D - 6								
D5Z3	B - 4	Q5B6	D - 6								
		Q5B7	B - 5								
IC4A0	C - 3	Q5B8	D - 5								
IC4A1	D - 4	Q5B9	B - 6								
IC4A2	B - 2	Q5C0	D - 5								
IC501	B - 2	Q5C1	D - 7								
IC502	D - 2	Q5C2	D - 7								
IC5A0	B - 6	Q5C3	A - 6								
IC5A1	D - 6	Q5C4	A - 6								
IC5A2	C - 6	Q5C5	D - 7								
IC5Z1	B - 3	Q5C6	A - 4								
		Q5D0	D - 5								
L5001	D - 6	Q5D1	C - 4								
L5002	D - 6	Q5D2	A - 1								
L501	A - 1	Q5D3	A - 7								
L502	C - 2	Q5D4	B - 7								
L503	C - 1	Q5D5	A - 7								
L504	C - 1	Q5D6	A - 7								
L5A0	D - 7	Q5E0	C - 7								
L5A1	B - 6	Q5E1	D - 4								

PCB-CONTROL



SYMBOL NO.	ADDRESS	SYMBOL NO.	ADDRESS	SYMBOL NO.	ADDRESS
CF5A0	B-6	L5A2	D-7	Q5E2	D-5
		L5A3	B-6	Q5E3	D-5
D4A0	D-2	L5A4	B-5	Q5E4	D-5
D4A5	D-2	L5A7	B-7	Q5E5	D-4
D4A7	A-4			Q5E6	D-4
D501	A-1	Q4A0	C-2	Q5G0	C-7
D5A0	C-5	Q4A1	C-2	Q5G1	D-7
D5A1	A-7	Q4A2	D-2	Q5G2	D-7
D5A2	B-6	Q4A3	D-3	Q5G4	B-4
D5A3	A-7	Q4A4	D-3	Q5G5	A-5
D5A4	B-4	Q4A6	D-4	Q5T4	D-7
D5A5	B-7	Q4A7	D-3	Q5T5	C-7
D5A6	C-5	Q4A8	A-3	Q5T6	C-6
D5A7	B-4	Q4A9	B-4	Q5T7	C-7
D5A8	B-6	Q4B1	A-3	Q5U1	D-4
D5A9	D-5	Q5002	D-6		
D5B1	D-5	Q5003	D-6	TP51	D-1
D5B2	D-4	Q5004	D-6	TP52	C-2
D5B3	D-5	Q501	C-2	TP53	D-1
D5B4	D-5	Q502	C-1	TP5G	D-4
D5B5	D-5	Q503	C-1		
D5B6	C-4	Q504	C-1	VC501	C-2
D5B7	D-4	Q507	B-1		
D5B8	D-4	Q508	B-1	VR4A0	D-3
D5B9	A-1	Q5A0	A-5	VR501	D-3
D5C0	D-5	Q5A1	B-6		
D5C1	B-5	Q5A2	B-6	X501	B-2
D5C3	D-7	Q5A3	B-6		
D5C5	D-7	Q5A4	A-7		
D5C8	B-4	Q5A5	C-4		
D5C9	D-4	Q5A6	D-7		
D5D1	D-6	Q5A7	D-5		
D5D2	D-5	Q5A8	C-4		
D5D3	D-5	Q5A9	A-5		
D5D4	D-5	Q5B0	B-6		
D5D8	A-1	Q5B1	C-5		
D5D9	A-1	Q5B2	B-6		
D5Z0	B-4	Q5B3	C-5		
D5Z1	B-3	Q5B4	A-7		
D5Z2	A-3	Q5B5	D-6		
D5Z3	B-4	Q5B6	D-6		
		Q5B7	B-5		
IC4A0	C-3	Q5B8	D-5		
IC4A1	D-4	Q5B9	B-6		
IC4A2	B-2	Q5C0	D-5		
IC501	B-2	Q5C1	D-7		
IC502	D-2	Q5C2	D-7		
IC5A0	B-6	Q5C3	A-6		
IC5A1	D-6	Q5C4	A-6		
IC5A2	C-6	Q5C5	D-7		
IC5Z1	B-3	Q5C6	A-4		
		Q5D0	D-5		
L5001	D-6	Q5D1	C-4		
L5002	D-6	Q5D2	A-1		
L501	A-1	Q5D3	A-7		
L502	C-2	Q5D4	B-7		
L503	C-1	Q5D5	A-7		
L504	C-1	Q5D6	A-7		
L5A0	D-7	Q5E0	C-7		
L5A1	B-6	Q5E1	D-4		